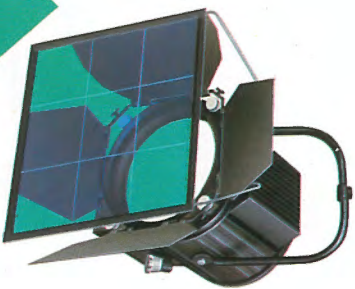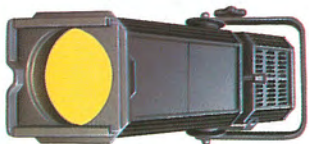# The Strandbook

THE EASY-REFERENCE CATALOGUE TO
ALL THAT'S BEST IN STAGE, STUDIO,
FILM AND ARCHITECTURAL LIGHTING

Strand Lighting
75 Years of
Brilliance

• Film Lighting • Television Lighting • Stage Lighting • Architectural Lighting •

CONTENTS

STRANDBOOK

Strand have designed the Strandbook to be a comprehensive catalogue of all Strand Lighting products, as well as a reference manual for anybody interested in stage and studio lighting.

To help you find a known product there is a brand name index at the back. Alternatively if you are not sure which product suits your needs turn to the relevant section such as stage, or television and browse through until you find what suits your requirements.

Each product has an item number which you will need to use when making enquiries or placing an order with Strand.

This item number corresponds to the separate price list.

For example to obtain the price of Minim 23, the item number is 22 310 0T, turn to the price list which is arranged in item number order until you reach the correct number. This will give you a price for Minim. Data sheets are available on all Strand and Quartzcolor luminaires, manual control desks, dimmer packs and racks, the smaller memory lighting systems, and associated accessories for both stage and studio use.

© Strand Lighting Limited

1914

Strand Lighting

In the heart of London's theatreland seventy five years ago a business was born – Strand Electric. Arthur Earnshaw and Phillip Sheridan were both London theatre electricians when they set up their company. Looking back, 1914 might not have seemed the most auspicious year in which to start a business; yet, almost from the start, its story is studded with the names of famous people, productions and theatres, and with a succession of technical achievements.

1989 – and the story goes on . . .

▲▲ At right, HM Queen Elizabeth II, with Princess Margaret and the Queen Mother, playing in a wartime pantomime production at Windsor – lit by Strand.

▲ Strand batch production – judging by the voluminous cut of the trousers, a mid-thirties shot showing what was probably a week's production of follow spots. Today it would be a disappointing single shift's output at Kirkcaldy.

▶For the musical 'Chess' at the Prince Edward Theatre, London, Strand supplied equipment for dimming the fluorescent lighting used in the squares of the chessboard, forming the spectacular floor of the stage. This was operated from a Light Palette 3 memory lighting system installed by Strand, who trained theatre staff in its operation and first line maintenance. Lighting designed by David Hersey.

▶Showchangers and Moving Visions Dance Theatre – a professional dance company based at Ballet Rambert School. Director, Ross McKim.

▲ BBC Wales, Cardiff, Studio C1. The first TV studio in the U.K. to use Strand's MMS memory lighting system. Equipped with Quartzcolor luminaires.

◀ The real breakthrough – London Coliseum 1952 and one of Fred Bentham's Light Consoles. The organ technology derivation is very obvious!

1989

▲ PALS installation and control room at the 'Maison de la Culture' Theatre, St. Etienne, France.

Seventy-five years young...

Strand Lighting supplied and installed the memory lighting systems at The National Theatre when it was first opened. Since then each theatre in turn has been updated with the latest Strand equipment. Both the Olivier and Lyttelton theatres use Galaxy control systems and the Cottesloe uses a Gemini.

▼ The Playhouse Theatre in London was reconstructed in 1986, and has reopened using Strand's Gemini memory control system and dimmers.

Leadership

Strand Lighting is the world's largest manufacturer and distributor of lighting and controls for the theatre, film and television industries.
Part of The Rank Organisation, it manufactures in four factories, has subsidiaries and affiliates worldwide, and is equipped with all the technical and financial resources needed to maintain its industry leadership.

◀ The Queen Elizabeth II Conference Centre, Westminster, London W1, is equipped with dimmers and controls from Strand's Environ range. These control both tungsten and fluorescent house lighting throughout the conference and meeting rooms.

◀ The theatre of the new Hawth Arts, Entertainment, Conference and Exhibition Centre, Surrey, is equipped with Strand luminaires and a Gemini memory lighting system and dimmers. Theatre design consultant, Graham Walne.
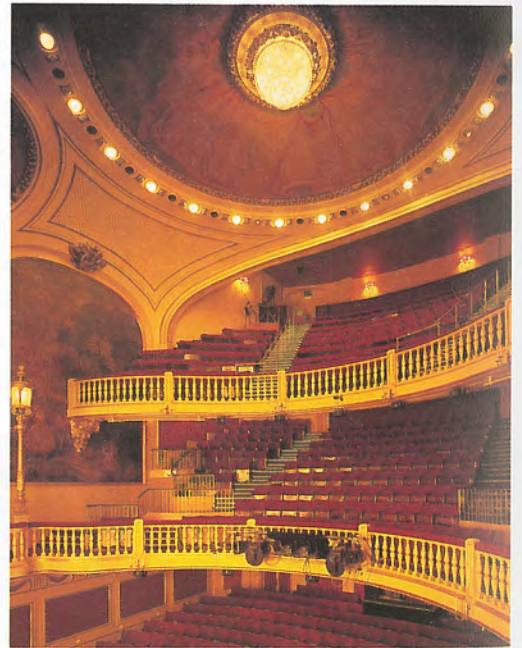
Range

Strand products and services cover the whole spectrum of amateur, professional and educational requirements, from economical luminaires for the small stage to the planning and equipping of an international opera house, a large television studio or a major arts complex.

◀ Television South, Southampton. Studio equipped with Quartzcolor luminaires and recently updated with Galaxy 2 Studio memory lighting system.

▶ The Paramount Studio in Los Angeles has installed almost exclusively Strand equipment from the luminaires through to the dimming and memory control systems. In this picture it is set up for the light entertainment show 'Solid Gold'.
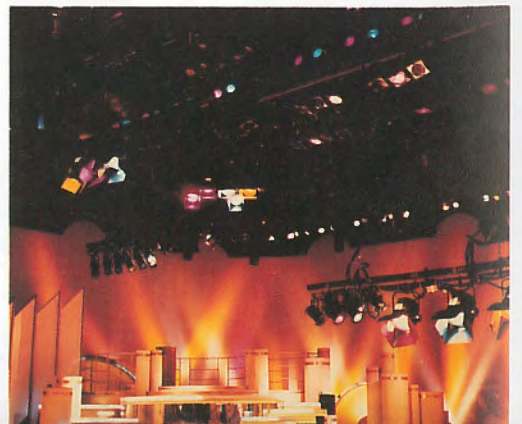
▶ Many Pizza Hut fast food restaurants in the UK are Strand equipped with commercial preset dimmers.

▶ A Kiss Concert using Strand remote controlled luminaires and memory lighting control system.

▶ At the British Harvest Restaurant, London Hilton, Park Lane, W1, Strand commercial dimmers control a mixture of tungsten and fluorescent lighting.

▼ Strand's PAL system is used to light Andrew Lloyd Weber's musical 'Aspects of Love'.

▼ During the building of Sky Television Studios, Strand's Project Services was involved in the conception; acting as a consultant to Sky, they attended co-ordination meetings with the architect, interfacing bodies such as Sony, and the on site team to ensure the smooth running of the project until its completion.

▶ This spectacular long narrow dining room, with a view of the Dallas skyline belongs to real estate developer Henry S Miller. The residence features a Strand Lighting preset dimming system developed so that each station acts as a control for the specific room in which it is located. Lighting designed by Craig Roeder.

▶ PALS installation at the 'Maison de la Culture' theatre, St. Etienne, France. This picture shows part of the F.O.H. rig of Cadenza luminaires fitted with PALS equipment.

▶▶ PALS Lighting Rig in Studio 1 at VTO-Medienzentrum Studio Complex, Hannover, showing Galaxy Studio remote lighting control on the studio floor.

...never felt better!

Innovation

Research and development has always played an important part in the company's progress. In the long Strand tradition of product innovation, many of today's developments are exciting and even revolutionary for the industry – such as Precision Automated Lighting Systems, advanced new luminaire features and sophisticated memory lighting controls. But, there is continuous improvement across the whole product range as well, bringing to lighting designers and operators the benefits of the latest technology in the form of higher performance, increased reliability and safety, and maximum economy.

Service

Direct from Strand Lighting, or through its network of regional distributors Strand provides to every customer, a helpful personalised service in lighting, second to none. Should you need technical advice fast, call our Project Services on 01-560 3171 extension 313 or 322.
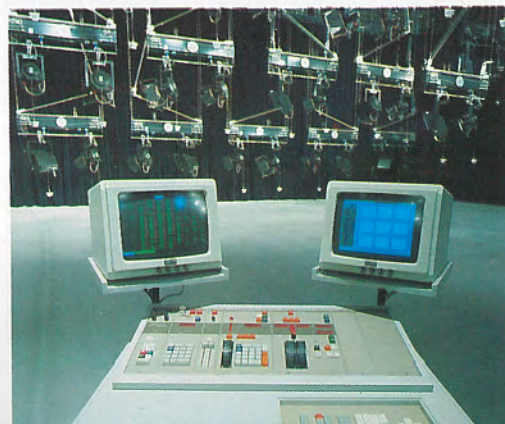
STRAND MEMORY LIGHTING CONTROLS

The story of a technological revolution . . .
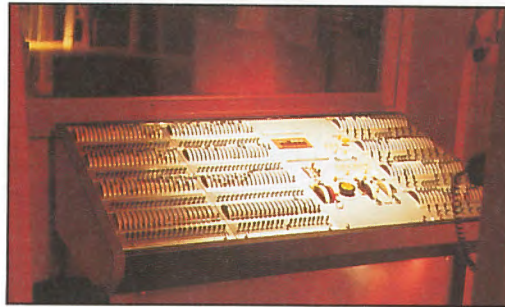
CONTROLS AND DIMMERS
THE STORY OF STRAND MEMORY LIGHTING CONTROLS

W ith micro-processor-based lighting control now the industry standard, it is interesting to look back to the predecessors of today's high-powered memory systems. Galaxy 3, Gemini 2, Lightboard M and the others in Strand's comprehensive range of control desks are all part of a proud heritage.

In 1967, Strand pioneered the development of memory lighting control with the introduction of the Instant Dimmer Memory system. Nine generations of control later, and with over 2000 installations worldwide, Strand maintains its reputation for innovation and quality in the world of professional lighting control.

IDM/MSR
1967
Installations: 20

T he world's first memory lighting control, the IDM/DL arose out of the need to advance from a three preset manual fader desk to means of recording the fader levels and instantly reproducing them during the performance. The first installation in June 1968 in Schweinfurt, was followed by Budapest Opera and the Coliseum, London. With its push button IDM/R variant (the prototype of the DDM) and the later redesigned MSR system, 20 systems were installed around the world.

DDM
1971
Installations: 18

T he operational advantages of IDM's recorded presets were hampered by the cumbersome procedure required to re-record a modified lighting state. A system which addressed this problem whilst retaining immediate access to any channel was the push button version of IDM (the /R for Rocker switch) which became the conceptual prototype for the first software computer lighting control. The DDM (Digital Dimmer Memory) was developed for the Royal Shakespeare Theatre, Stratford-upon-Avon, but immediately became recognised as the major world-class memory lighting control.

MMS
1973
Installations: 208
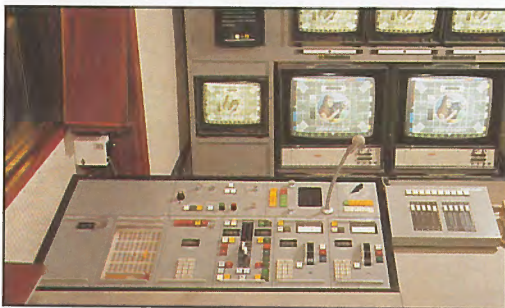
M MS (Modular Memory System) was the first mass produced memory control and jumped two hurdles in a single stride: it took full advantage of low-priced integrated circuit technology, and dispensed with a rocker switch per channel in favour of a calculator keypad and wheel, to control up to 480 channels. A range of user selectable modules gave theatres and TV studios in 30 countries the chance to light with a custom-designed control at an affordable price.

COMPACT
1975
Installations: 108

T he overwhelming success of MMS led to a smaller, transportable, compact MMS system with fixed facilities for up to 120 channels. Three versions of the Compact were produced and supplied to theatres and television companies worldwide.

LIGHTBOARD
1976
Installations: 11

T he exacting production schedules forecast for London's National Theatre led Richard Pilbrow, its consultant, and chairman of Theatre Projects, to develop the concept for a fully saturated lighting rig, controlled by highly sophisticated purpose-designed lighting control. Lightboard pioneered control of 1000 channels, total control of lighting intensity, position and colour, the powerful latest-action-takes-precedence principles and multiple timed fades.

4 Strand Lighting
☎ 01 560 3171

DUET
1978
Installations: 500+

A 'child' of the microprocessor revolution of the mid 70's, Duet was the first 'off the shelf' packaged memory lighting system. Controlling up to 120 channels, the desk-top sized Duet performed as both a permanent and portable memory control for provincial and major theatres, TV studios, and hire companies around the world.
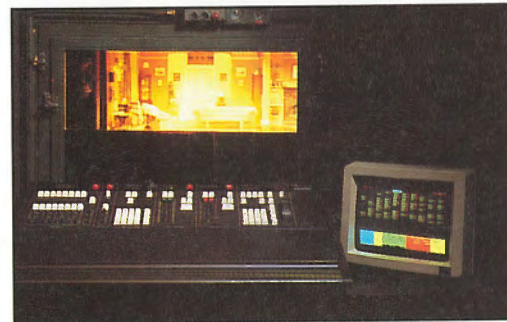
GALAXY
1980
Installations: 300+

T he first generation of Galaxy capitalised on the advantages of modular control, and brought MMS operational philosophy up to date with simple direct control of up to 768 channels, multi-part timed fades, colour VDUs and a host of options, allowing a theatre to construct the ideal control for its facility.
Continued development led to Studio Galaxy, the first memory system to address the unique needs of television production with enhanced manual playback and multiple channel controllers.

TEMPUS M24
1983
Installations: 800 +

M 24 introduced the advantages of memory control to smaller installations. Strand's unique experience in memory lighting development was now bringing handsome benefits to lighting designers everywhere! From IDM came the concept of recording from an associated fader wing, from MMS the wheel and keypad control, from Lightboard the multipart fade. Speed of operation and simplicity of control have made M24 an international success in the professional and amateur theatre, and with TV and hire companies.

GEMINI
1984
Installations: 300+

A s with MMS and Compact, the operational advantages and popularity of the large, multi-channel Galaxy led directly to a smaller, transportable version. Originally introduced at 180 channels, Gemini offered many of Galaxy's features, including the most comprehensive programmable special effects package in the industry, and all for a modest price.

AN INTRODUCTION TO MULTIPLEXING

M ultiplexed control is a term frequently encountered in the technical literature of stage lighting equipment, including this catalogue. The following summary may be a helpful layman's guide to the subject.

WHAT IS IT?
Multiplexing is a widely-used technique which allows large numbers of electrical signals to be transmitted along a single wire in sequence. In lighting control, this technique is applied to control levels for dimmers. Signals representing different dimmer levels can be transmitted one after the other hundreds of times a second along the same wire.

WHAT'S THE ADVANTAGE?
In traditional or analogue lighting control systems, each channel is connected directly to its dimmer by its own dedicated wire. The larger the number of dimmers, the more wires are required. With multiplexing, no matter how many dimmers there are, connection is made to all of them using only one control wire. So costs are saved with complex systems.

WHY IS IT NECESSARY?
Because of new technology, systems are now much larger than they used to be – several hundred dimmers may be controlled from one source. Also, for operational reasons, controls are now frequently operated remote from dimmers which are located in an electrical equipment room convenient for incoming power. Wiring up by conventional means can result in expensive and unwieldy installations.

HOW DOES IT WORK?
Control channels and the desk electronics generate low voltage multiplexed signals which determine the dimmer levels and so the brightness of the light. Samples of each signal in turn are transmitted along the control wire. At the dimmers, a demultiplexer decodes the signals and routes the correct voltage to each dimmer in turn.
The rapid sampling of the dimmer signals ensures that lighting levels keep up with changes as they are required, as for a fade, or when a channel potentiometer is moved. Between signals, the demultiplexer holds the levels so there is no drifting.

WHERE DOES IT APPLY TO STRAND CONTROLS?
With the exception of the very simple ACT and Tempus 2G desks, all of Strand's controls utilise multiplex technology for efficiency and installation cost benefits. PIP and Permus dimmer racks accept either analogue or multiplexed control signals for compatibility with Strand multiplexed controls or the analogue controls of other manufacturers. Separate demultiplexers are available to permit use of Strand consoles with older, analogue dimmers.

STRAND CONTROLS TODAY

The Strand range of lighting controls and dimmers extends from compact and versatile portable dimmer packs with local fader control to the sophisticated Galaxy 3 memory lighting system with 999 channels controlling up to 1536 dimmers.
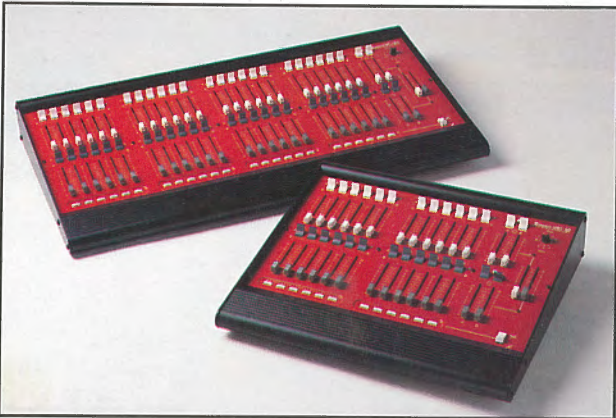
ACT MANUAL DESKS
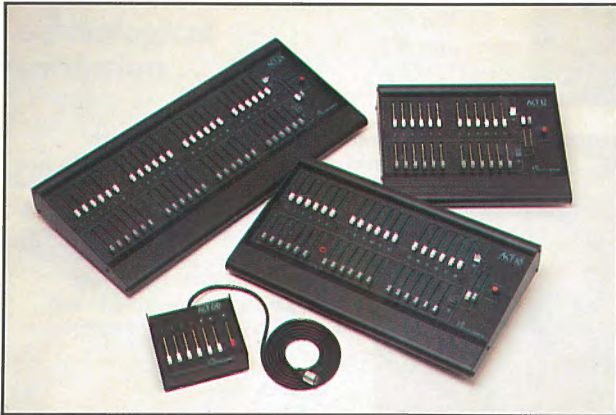
Straightforward manual control for systems up to 24 dimmers. Act 12, 18 and 24 provide the following features:

- Two scene preset operation
- Split dipless crossfader with fade time ability
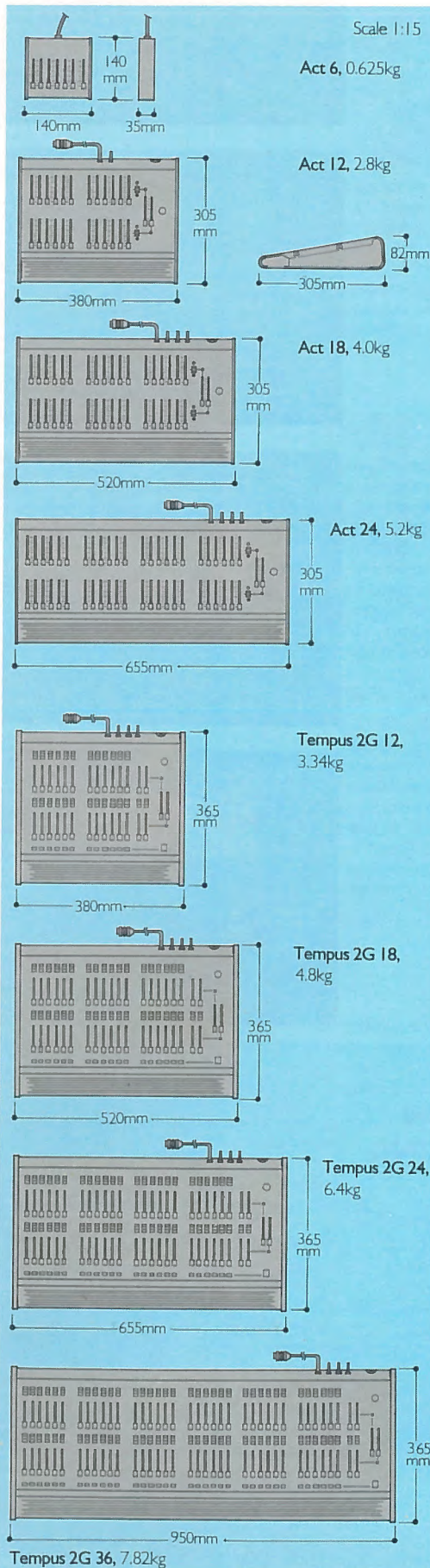- Dead blackout switch on each scene
- Analogue control output

Act 6D offers six manual faders and a master

TEMPUS 2G

More advanced two scene preset operation with the additional benefit of grouping.

- Two scene preset controls in 12, 18, 24 or 36 channels
- Two group faders per scene
- Blackout switches for each scene
- Group selection switches on each channel
- Flash buttons with on or off selection
- Split dipless crossfader with fade time ability
- Grand Master

Scale 1:15

Act 6, 0.625kg
140 mm
140mm   35mm

Act 12, 2.8kg
305 mm
82mm
380mm   305mm

Act 18, 4.0kg
305 mm
520mm

Act 24, 5.2kg
305 mm
655mm

Tempus 2G 12, 3.34kg
365 mm
380mm

Tempus 2G 18, 4.8kg
365 mm
520mm

Tempus 2G 24, 6.4kg
365 mm
655mm

Tempus 2G 36, 7.82kg
365 mm
950mm

ACT CONTROL DESKS

Act 6D Control, single Preset Desk with master fader | **04 620 06**

12-channel, 2-preset Act desk | **04 620 12**

18-channel, 2-preset Act desk | **04 620 18**

24-channel, 2-preset Act desk | **04 620 24**

TEMPUS 2G CONTROL DESKS

12-channel, 2-preset, 4-group Tempus 2G desk | **04 412 02**

18-channel, 2-preset, 4-group Tempus 2G desk | **04 418 05**

24-channel, 2-preset, 4-group Tempus 2G desk | **04 424 00**

36-channel, 2-preset, 4-group Tempus 2G desk | **04 436 09**

Accessories

Pair of wall mounting brackets for any Act or Tempus desk, except Act 6 | **04 374 02**

Act or Tempus Desk
5 metres of 6-channel control extension cable with mating plug and socket | **04 350 06**

Act or Tempus Desk
19 metres of 6-channel control extension cable with mating plug and socket | **04 351 01**

Twin 8-pin control socket box wired to terminals | **04 372 1T**

Quad 8-pin control socket box wired to terminals | **04 373 15**

All the above desks have a 2 metre analogue control cable, for each multiple of 6 channels, to plug in to a portable dimmer pack/or to a control socket.

ACTION CONTROL DESKS

A small memory system designed to operate with the Act range of dimmers.

- 24 or 48 manual faders with flash to full or off
- 99 memories
- Digital keypad for memory and effects selection
- Split dipless crossfader, timed or manual with LED display
- Memory load pushbuttons
- LED display of memory numbers
- Blind recording and modification
- Nine special effects
- Manual output master
- Write-on strip
- Multiplexed output
- Dust cover included
- Optional work lamp

ACTION 24   `04 601 24`

ACTION 48   `04 601 48`

Action consoles are supplied with: 2 metres of AC mains cable   `07 255 83`

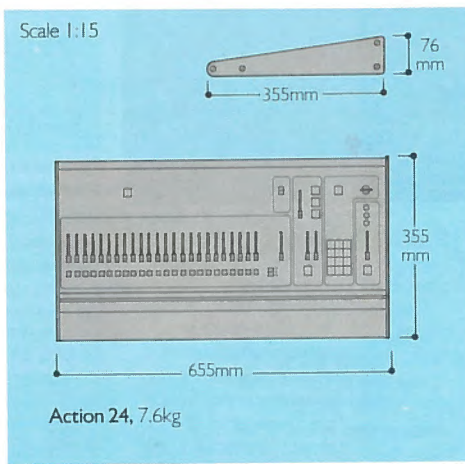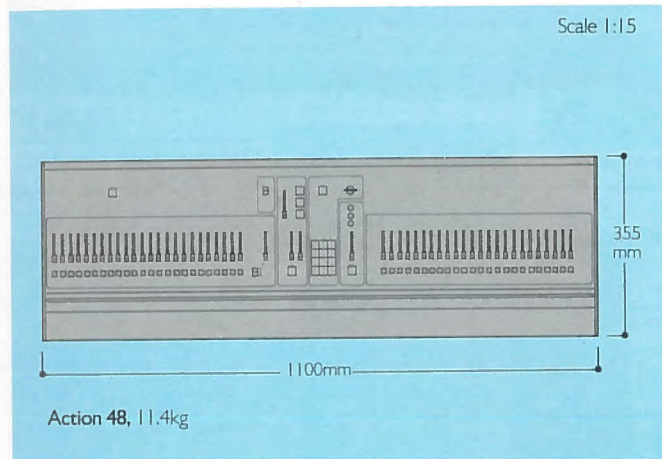5 metres of data cable   `07 255 59`

Dust cover for Action 24   `08 601 24`

Dust cover for Action 48   `08 601 48`

Accessories

Action Demultiplexer 0 to −10V control (via silicon diode and 10k ohm resistor). May be converted to +10V control. Switch selectable to control dimmers 1 to 24 or 25 to 48. Supplied with mains lead.   `04 601 00`

Action Demux Adaptor Cable 25 pin D type connector to four 6-way Bleçon connectors, 3 metres.   `04 601 10`

High intensity gooseneck plot lamp for Action desk   `08 601 04`

Scale 1:15

355 mm

1100mm

Action 48, 11.4kg

Scale 1:15

76 mm

355mm

355 mm

655mm

Action 24, 7.6kg

TEMPUS M24

W ell-established, small to medium sized memory system for up to 120 channels. Optional special effects desk also acts as backup to the M24.

Scale 1:15

305 mm

380mm

M24, 8.72kg
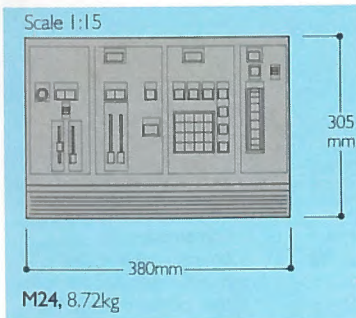
- 24 to 120 channels
- Up to 199 memories
- Digital address of channels and memories
- Wheel for level setting
- LED displays for Level, Channel and Memory information
- Blind recording and modification
- Fade time recording and over-ride
- Multiplexed output
- Optional monochrome VDU and cassette for library storage
- Optional manual desks for setup and recording

M24 CONTROL DESK

Portable control desk with moulded cover, 5 metres of multiplex mains cable, TV and tape recorder cables, and handbook.
24 channels, 199 memories
48 channels, 199 memories
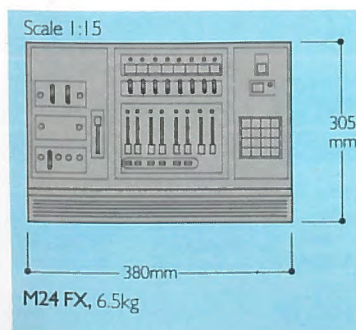60 channels, 185 memories
72 channels, 155 memories
`03 700 00`

96 to 120 channel, 199 Memory M24
`03 700 00/120`

73 to 120 channel expansion kit for M24
`03 702 00`

TEMPUS M24FX

D esigned to operate either independently as a special effects desk, or in combination with M24 for submastering, special effects and backup.

Scale 1:15

305 mm

380mm

M24 FX, 6.5kg

- Eight faders for group control
- Flash buttons for six faders
- Eight three position switches for fader mode selection
- Chase, Flash and Sound to Light input
- Effects master
- Digital keypad for channel address

M24FX CONTROL DESK

To complement the M24 control desk. Provided with moulded cover, 5 metres of multiplex cable, mains lead and handbook.
M24FX 120 channels
`03 703 08`

LIGHTBOARD M

The overwhelmingly popular new memory system, ideal for multi-purpose installations.

- 96 or 144 digitally addressable channels
- Electronic patching for up to 768 dimmers
- 24 or 48 completely overlapping submasters with flash and solo
- Two scene preset manual faders in modules of twelve channels, up to the maximum of 144
- Split dipless crossfader, timed or manual
- Timed X-fader with programmable waits and delays
- Up to 200 memories
- Two special effects faders
- 8 programmable function keys
- 3½" disc drive
- Colour monitor
- Internal backup system
- Full range of optional equipment

All consoles shown below provide **96** digitally addressable channels. Two scene preset control is provided by the indicated number of faders.
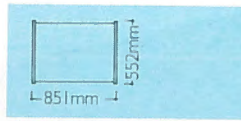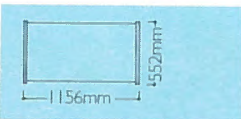
Plan measurements apply to the following two consoles.
Two scenes of 36 faders, 24 subs, 200 memories
73 088 13

Two scenes of 48 faders, 24 subs, 200 memories
73 088 14

Plan measurements apply to the following six consoles.
Two scenes of 60 faders, 24 subs, 200 memories
73 088 15

Two scenes of 72 faders, 24 subs, 200 memories
73 088 16

Two scenes of 84 faders, 24 subs, 200 memories
73 088 17

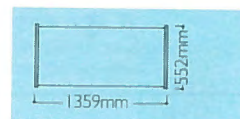Two scenes of 48 faders, 48 subs, 200 memories
73 088 24

Two scenes of 60 faders, 48 subs, 200 memories
73 088 25

Two scenes of 72 faders, 48 subs, 200 memories
73 088 26

Plan measurements apply to the following three consoles.
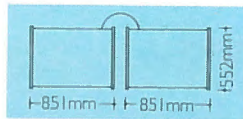Two scenes of 96 faders, 24 subs, 200 memories
73 088 18

Two scenes of 84 faders, 48 subs, 200 memories
73 088 27

Two scenes of 96 faders, 48 subs, 200 memories
73 088 28

The following consoles provide **144** digitally addressable channels. Two scene preset control is provided by the indicated number of faders.

Plan measurements apply to the following four consoles.
Two scenes of 108 faders, 24 subs, 140 memories
73 088 19

Two scenes of 120 faders, 24 subs, 140 memories
73 088 20

Two scenes of 132 faders, 24 subs, 140 memories
73 088 21

Two scenes of 144 faders, 24 subs, 140 memories
73 088 22

Please note that 48 submasters are only possible in systems of 96 channels or less.

Each console is complete with full colour VDU, 3½" disc drive for library storage, mains cable, control cables, plotlamp, and a box of 10 diskettes.

Accessories

Dual Electronic Backup for 96 channel systems **73 900 01**

Dual Electronic Backup for 144 channel systems **73 900 02**

Designer's Control, providing all channel access, level setting and memory recording functions. Includes control cable and battery charger **73 081 64**

Printer **73 088 52**

Colour VDU (additional) **73 088 50**

Monochrome VDU **73 088 51**

Taskmaster control module for control of Pan, Tilt and Colour Change for the Showchanger Parscan II.
For inclusion with Lightboard M add suffix /TM to the item numbers specified in the adjacent two columns.

Vinyl cover for 33½" consoles **73 088 93**

Vinyl cover for 45½" consoles **73 088 94**

Vinyl cover for 53½" consoles **73 088 95**

LIGHTBOARD M JUNIOR

A new version with everything but the faders! Smaller, more portable, but still powerful.

- 96 or 144 digitally addressable channels
- Electronic patch to 768 dimmers
- 24 submasters which may act as channel controls
- Two dipless crossfaders, one manual, one timed with programmable waits and delays
- Special effects package with dual faders
- Colour monitor
- 3½" disc drive
- Up to 200 memories
- Internal backup
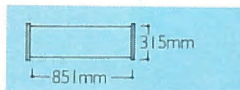
LBM/Jr. with 96 channels, 200 memories, 24 submasters, disc, colour monitor, mains and control cables, plotlamp, and a box of 10 diskettes.
73 088 10

LBM/Jr. with 144 channels, 140 memories, 24 submasters, disc, colour monitor, mains and control cables, plotlamp, and a box of 10 diskettes.
73 008 10/144

Accessories

Designer's Control for channel and memory functions. Includes control cable and battery charger.
73 081 64

Printer **73 088 52**
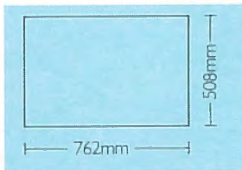
Colour VDU (additional) **73 088 50**

Monochrome VDU **73 088 51**

Vinyl cover **73 088 93**

IMPACT

A new look and a new approach to mid-range lighting control.

762mm

508mm

- 350 control channels with proportional patching to 768 dimmers
- Two timed playback faders with programmable split times, delays, and follow-on
- One manual split dipless crossfader
- 20 overlapping scene masters
- Four programmable inhibit masters
- Flash buttons with selectable exclude-from-record and solo operation
- Two keypads for channel and memory selection
- Blind recording and modification
- High resolution colour VDU
- 3½" disc drive
- Outboard backup module
- Optional link to second console for expansion to control of 700 channels or full tracking backup

IMPACT CONTROL CONSOLE

Portable console for control of 350 channels, complete with colour monitor and backup module. Supplied with 5 metres data cable, IEC connector and operator's handbook **73 084 10**

Accessories

Designer's Control for channel and memory access, including recording and playback; battery charger and cable. **73 084 20**
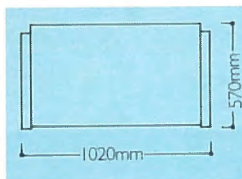
Printer for hard copy printout of cues, patch, submaster assignments and other recorded information **73 088 52**

GEMINI 2

P opular memory control with the most comprehensive programmable special effects in the industry, now redesigned and more powerful than ever.

1020mm

570mm

- 240 channels with proportional patching to 384 dimmers
- Memory list, Patch and Submaster displays
- Two split crossfaders, timed or manual
- Eight submasters with inhibit and flash
- 99 user programmable special effects with sound to light input and rate control
- Integral disc storage
- High resolution colour VDU with redesigned displays
- Comprehensive backup provided as standard

GEMINI 2 MEMORY CONTROL

Portable console for control of 240 channels and 384 dimmers, providing special effects, backup, library storage and colour monitor as standard. Supplied with 5 metres of data cable, 2 metres of mains cable and operator's handbook **03 811 00**

Accessories

Designer's Control for wired or infra-red operation, provides channel control, recording and playback facilities. Supplied with a set of connectors, battery charger and 13 amp socket **02 550 02**

Infra-red Receiver, for use with Designer's Control **02 552 03**

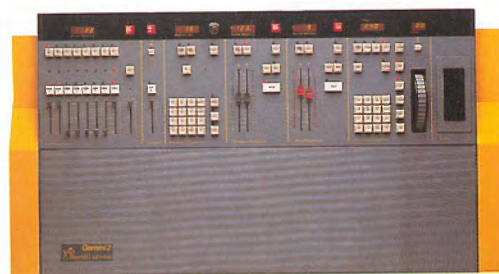Rigger's Control for control of individual channels for focusing. Supplied with a set of connectors, battery charger and 13 amp socket **02 540 05**

Rigger's socket box **02 024 0T**

Printer for hard copy printout of all recorded information **03 860 00**

DESIGNER-CREATED EFFECTS

Fully programmable effects are a special feature of Gemini. Six effect types available for producing up to 99 separate effects. Using the special keypad and the VDU for setting up, effects may be linked to the start of a fade and all parameters of the event can be programmed, including the type of effect, starting and stopping, and the memories and channels which take part in each step of the effect.

INDEPENDENT BACK-UP

Ready for use beneath the removable cover on the console is the separately-powered integral electronic back-up system. Ten presets of eight groups of dimmers can be programmed with the auxiliary keypad, or transferred from Gemini's output.

GALAXY 3 THEATRE

T he international standard for professional lighting control, now offering such unique features as Dimmer Fault Detection feedback and completely integrated control of automated fixtures.

- 999 dimming control channels plus an additional 99 for automated lights
- Control of up to 1536 dimmers
- Completely modular for custom configuration

- Up to 20 preset masters with LED displays, flash, boost and inhibit capability
- Motion Control module for position and colour control

- Dimmer Fault Detection system for local reporting of dimmer status including No Load, Short Circuit and No Output
- Fully proportional patch
- Improved high resolution video displays

- Improved special effects
- Completely redesigned electronics for greater speed and data integrity

Features	GALAXY 3	LIGHT PALETTE 3	IMPACT	GEMINI 2	LIGHTBOARD M, LBM/Jr.
No. of Channels	● 999	● 800	● 350	● 280	● 96 or 144 addressable channels
No. of Dimmers	● 1536	● 1536	● 768	● 384	● 768
No. of Memories	● 200 average	● 200 average	● 400 average	● 200 average	● 200 or 140
Electronic Patch	● Full proportional	● Full proportional	● Full proportional	● Full proportional	● Full proportional
No. of Playbacks	● 8 wheels max. (theatre) ● 4 faders max. (studio)	● 2 to 6 operator selectable	● 2 timed 1 split manual	● 2 split crossfaders timed or manual	● 2 crossfaders, 1 timed 1 timed or manual
No. of Submasters	● 20 preset masters with inhibit flash & over-range	● 9 to 13 operator selectable	● 20 pile-on overlapping, 4 inhibitive, all with flash and exclude from record	● 8 with inhibit and flash	● 24 or 48 pile-on with selectable flashbuttons
Special Effects	● 99 effects ● 256 steps ● Level and speed over-ride	● 99 effects ● 80 steps ● submaster controllable	● Cue looping and 100 Set Up cues	● 99 effects ● 256 steps ● Level and speed over-ride	● Up to 200 effects ● 84 steps ● 2 playbacks ● Rate over-ride
VDU's	● Up to 4 discrete high resolution colour	● 2 discrete colour	● 1 high resolution colour	● 1 high resolution colour	● 1 colour
Library Storage	● Dual 3½" discs	● 3½" disc	● 3½" disc	● 3½" disc	● 3½" disc
Back-up	● Programmable memory back-up or dual electronics	● Lightboard M or dual electronics	● Dimmers to faders patch or full tracking	● Dimmer to faders patch	● Channels to fader patch ● Full tracking option
Options	● Printer ● Stalls control ● Rigger's control ● Remote monitors	● Printer ● Remote desk ● Hand-held control ● Remote monitors	● Printer ● Hand-held control	● Printer ● Stalls control ● Hand-held control, wired or infra-red	● Printer ● Hand-held control ● Remote activation of up to 8 pre-programmed commands
Additional Features	● Alpha keypad ● Pan, tilt, focus module ● Internal clock ● Dimmer fault reporting ● Learn profile ● Channel format ● Profile ● Auto mod ● Record track	● Alpha keypad ● Profile ● Channel format ● Bankloading of submasters ● User selectable default fade time	● Selectable default fade time ● Expansion to 700 channels ● Multiview for on-line preview ● User diagnostics	● Bankloading submasters ● Memory list display ● Local channel and memory displays	● 8 function keys ● Memory list display ● Remote submasters

MEMORY SYSTEM SERVICING SECOND TO NONE

GALAXY 3 STUDIO

T he only major lighting control system designed specifically for television production. Studio Galaxy provides all the features of Galaxy 3 Theatre plus:

● Dedicated television playback panel with two Studio stores

● Individual record functions for Preset, Studio and total output

● Two output masters for separate control of active and preset states.

Accessories

Designer's Control, available for hard-wired or infra-red operation. Provides channel access, memory recording and playback facilities. Supplied with a set of connectors, battery charger, and 13 amp socket.

02 550 02

Infra-red Receiver, for use with Designer's Control

02 552 03

Rigger's Control – a rugged hand-held controller for channel access during focusing. Supplied with a set of connectors, battery charger and 13 amp socket

02 540 05

Rigger's socket box

02 020 4T

Stalls or Studio Control – selected control modules may be housed in a portable desk for access to level setting and memory recording during rehearsals.

Printer – provides hard copy printout of all recorded information. Now date and time stamped.

Geographic Button Mimic – a custom panel matching the circuit layout of the stage. Each button illuminates when the circuit is active and flashes while under control.

M24/M24FX	ACTION 24/48	TEMPUS 2G	ACT DESKS
● 24 to 120	● 24 or 48	● 12, 18, 24, 36 in 2 scenes	● 12, 18, 24 in 2 scenes
● 24 to 120	● 24 or 48	● 12 to 36	● 6 to 24
● 199	● 99	–	–
–	–		
● 1 split timed or manual	● 1 split crossfader with fade time controller	● 1 split crossfader	● 1 split crossfader with fade time controller
● 8 group faders		● 4 group faders	
● 8 faders	● 9 effects ● 48 steps ● sound to light ● rate control	–	–
● 1 black and white	–	–	–
● Cassette	–	–	–
● FX module	● 24 or 48 faders	–	–
–	–	–	–
● Multiplex output ● Local displays	● Multiplex output ● Memory number and display ● Manual master ● Flash buttons with flash to full or solo	–	–

LIGHT PALETTE 3

N ew features for this popular American control console include:
● 800 channels with proportional patch to 1536 dimmers
● 9 or 13 submasters, user-selectable
● User definable default fade times
● High resolution colour VDU's
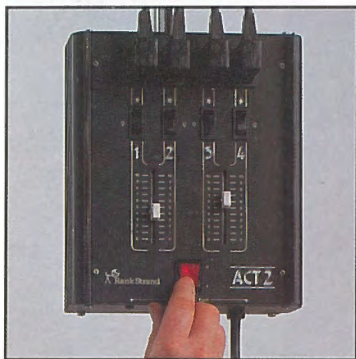● Full tracking backing
● Dual 3½" disc drives

Accessories
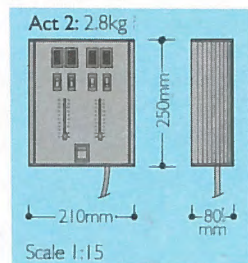● Stalls control
● Printer

Strand Lighting
☎ **01 560 3171**

ACT 2 DIMMER PACKS

A low-priced lighting system with dimmers and control faders integrated in one compact unit.

- 2 dimmers in a single package.
- Dims up to four 650W loads or two 1200W loads.
- Requires mains supply of only 13 amps.
- Simple installation.

Act 2: 2.8kg

250mm
210mm
80mm

Scale 1:15

ACT 2
ACT 2 dimmer with 5 metres of cable, four CEE 22 6 amp plugs, two spare fuses

| 04 030 08 |

Accessories
Mounting plate | 04 027 09 |

Pack of ten CEE 22 6 amp plugs | 04 031 03 |

Pack of ten 6.3 amp HRC fuses | 08 006 40 |

ACT 3 AND ACT 6 DIMMER PACKS
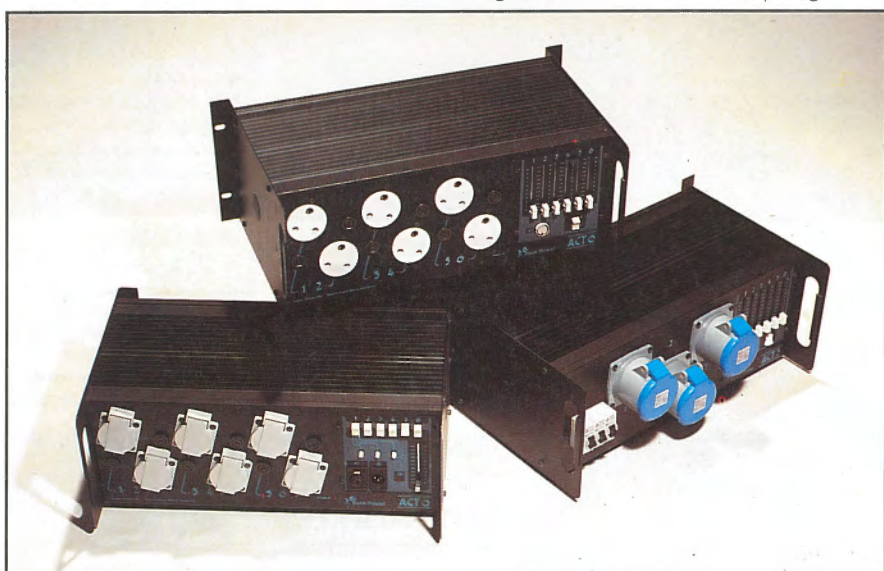
E conomical portable dimmers in a rugged rack mounting case.

- Six 10A or three 25A dimmers in a rugged, economical package.

- Choice of analogue or multiplex input.
- Local fader control for performance or rigging.
- Easily convertible for rack mounting.
- Fuse continuity indicators
- Thermal over-temperature fuse protection.
- Designed for RCCB protected mains supplies.
- Meets BS 800 and VDE 0875 RFI standards.
- Fully rated for continuous operation.
- Wide choice of output socket types.
- Compatible with all Strand control products.

ACT 3 25A
3 x 25A dimmer pack for 220/240V 3 phase, neutral and earth supply. Strapping bar provided for conversion to single phase operation. CEE17 32A socket outlet provided for each dimmer output, protective circuit breakers, a six lever local control with disable switch and socket for a Tempus desk, and a control output socket to connect to a slave ACT 3. | 04 031 34 |

ACT 3 25A MULTIPLEX
3 x 25A dimmer pack for 220/240V 3 phase, neutral and earth supply. Strapping bar provided for conversion to single phase operation. CEE17 32A socket outlet provided for each dimmer output, protective circuit breakers and a local switch and a control output socket to connect to a slave ACT 3. | 04 031 36 |

ACT 3 25A SLAVE
3 x 25A dimmer pack for 220/240V 3 phase, neutral and earth supply. Strapping bar provided for conversion to single phase operation. CEE17 32A socket outlet provided for each dimmer output, protective circuit breakers and a 3 way control link cable to connect the Slave to a Multiplex or Analogue ACT 3. | 04 031 38 |

Act 3: 10kg
180mm
300mm
490mm

Act 6: 9.6kg
180mm
300mm
490mm

Scale 1:15
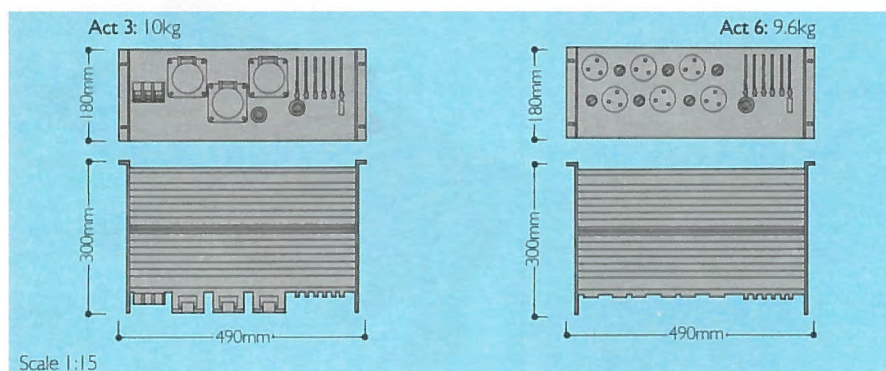
ANALOGUE CONTROL DIMMER PACKS

ACT 6 15A
6 x 10A dimmer pack for 220/240V single phase and neutral plus earth supply, with a single 15A socket for each dimmer output, and a six lever local control with disable switch and socket for Act or Tempus desk | 04 042 09 |

ACT 6 16A CEE17
6 x 10A dimmer pack for 220/240V three phase (or single phase), neutral and earth supply, with one CEE17 16A socket outlet for each dimmer output, and a six lever local control with disable switch and socket for Act or Tempus desk | 04 044 50 |

ACT 6 SCHUKO
6 x 10A dimmer pack for 220/240V three phase, neutral and earth supply, with a single Schuko socket for each dimmer output, and a six lever local control with disable switch and socket for Act or Tempus desk | 04 044 0T |

MEMORY SYSTEM SERVICING SECOND TO NONE

MULTIPLEX CONTROL
DIMMER PACKS

ACT 6 15A MULTIPLEX
6 x 10A dimmer pack for 220/240V single phase and neutral plus earth supply, with local switch and master fader control, multiplex input/output connectors and channel selector switch, and a single 15A socket for each dimmer output | 04 045 05 |

ACT 6 16A CEE17 MULTIPLEX
6 x 10A dimmer pack for 220/240V three phase (or single phase), neutral and earth supply, with local switch and master fader control, multiplex input/output connectors and channel selector switch, and a single 16A CEE17 socket for each dimmer output | 04 047 50 |

ACT 6 SCHUKO MULTIPLEX
6 x 10A dimmer pack for 220/240V three phase, and neutral plus earth supply, with local switch and master fader control, multiplex input/output connectors and channel selector switch, and a single Schuko socket for each dimmer output | 04 047 06 |

ACT 6 MULTIPLEX CONVERSION KIT
(To adapt analogue packs) | 04 032 11 |

Accessories
For standard analogue control of packs refer to the Act and Tempus range of manual fader desks. For multiplex control, see Action, M24, M24FX, Lightboard M, Gemini or Galaxy memory controls

MULTIPLEX INTERFACE UNITS

A range of interface units which convert the multiplex output of Action, M24, M24FX Lightboard M, Gemini Impact and Galaxy memory control systems into conventional analogue signals.

ACTION DEMULTIPLEXER
Designed specifically for the Action consoles, this new economy demultiplexer permits control of 24 analogue dimmers. A second box can be connected for control of a total of 48 dimmers. The Action demultiplexer is designed to produce the Strand standard. – 10V control voltage, but the unit can be converted to produce +5, +10, +12, –5 or –12 volt. Each demultiplex box is provided with mains and 0.5 metre daisy chain data cables.

Action demultiplexer, 24 dimmers | 04 601 00 |

F&D MULTIPLEX INTERFACES
24 channel Fader & Dimmer interface unit for use with systems in which a manual control desk is included and/or dimmers which have a non-standard control input voltage are used.

24 channel F&D interface to connect to Tempus dimmer racks and control desks | 03 710 09 |

24 channel F&D interface with Tempus type connectors, but adapted for systems with – 15V control voltage | 03 714 00 |

24 channel F&D interface with D type connectors for dimmers and control with – 10V control voltage. D type connectors and control cables are not included | 03 711 04 |

24 channel F&D interface with D type connectors for dimmers and control with + 10V control voltage. D type connectors and control cables are not included | 03 713 05 |

24 channel F&D interface with D type connectors for dimmers and controls with – 15V control voltage. D type connectors and control cables are not included | 03 715 00 |

PERMUS DEMULTIPLEX UNIT
24 channel chassis-mounted interface unit for installation using multiplexed controls and Permus dimmers. Although the unit is designed to mount inside a Permus dimmer rack, it is also suitable for other dimmers using the Strand standard – 10V control voltage. A kit of parts comprises demultiplex interface, mains supply cable, dimmer control cables and instruction leaflet.

24 channel Permus Demultiplex Kit | 06 020 00 |

TEMPUS DIMMER PACKS

R ugged, portable dimmer packs in 10,20 and 25A ratings.
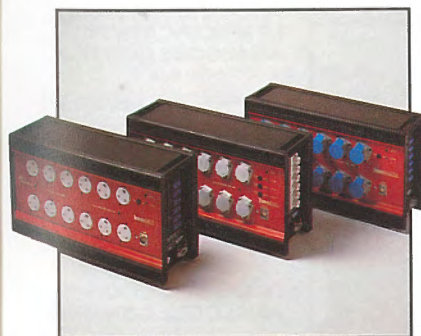
- Dual sockets per 10A dimmer.
- Meets BS800 and VDE 0875 RFI standards.
- Fully rated for continuous operation.
- Phase voltage indicators.
- Integral carrying handles.

TEMPUS 10A/5
6 x 10A dimmer pack as 10A/15 above, but with individually fused twin 5A 3-pin shuttered sockets for each dimmer output | 04 105 08 |

TEMPUS 10A/15
6 x 10A dimmer pack for 220/240V single phase and neutral plus earth supply, with shrouded-contact fusing and twin, shuttered 15A 3-pin sockets for each dimmer output | 04 115 05 |

TEMPUS 10A/C
6 x 10A dimmer pack for 220/240V three phase and neutral plus earth supply, with Neozed fusing and twin hinged-lid Schuko sockets for each dimmer output | 04 116 00 |

TEMPUS 10A/16
6 x 10A dimmer pack for 220/240V single phase and neutral plus earth supply, with shrouded-contact fusing and twin 16A 2 pole + E CEE17 sockets for each dimmer output | 04 117 00 |

TEMPUS 20A
3 x 20A dimmer pack for 240V single phase and neutral plus earth supply, with shrouded-contact fusing and 32A 2 pole + E CEE17 socket for each dimmer output | 04 215 0T |

TEMPUS 25A/C
3 x 25A dimmer pack for 220/380V three phase and neutral plus earth supply, with Neozed fusing and 32A 2 pole + E CEE17 socket for each dimmer output | 04 225 07 |

Accessories
Pair of wall mounting brackets for any Tempus dimmer pack | 04 371 06 |

Cord patch to join 'hard' load wiring to 12 flexible cables, each cable combed through angled panel and fitted with 15 Amp 3-pin plugtop | 04 798 23 |

Cord patch as above, but 5 Amp 3-pin plugtop | 04 798 31 |

One way control plug box, containing 1 metre cable terminating in an 8-pin plug, wired to terminals | 04 375 01 |
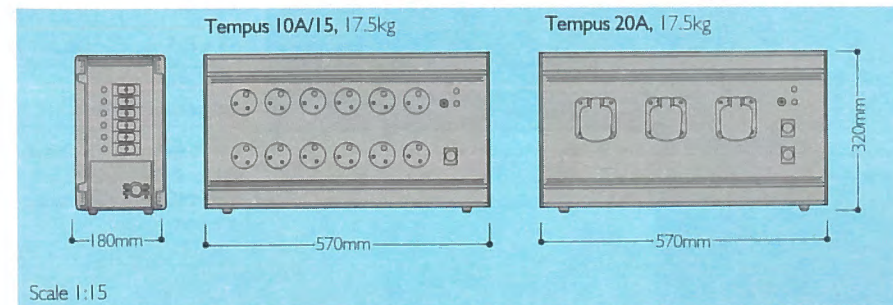
Two way control plug box, otherwise as above | 04 375 02 |

Three way control box, otherwise as above | 04 375 03 |

Tempus 10A/15, 17.5kg

Tempus 20A, 17.5kg

180mm 570mm 570mm 320mm

Scale 1:15

PERMUS DIMMER RACKS
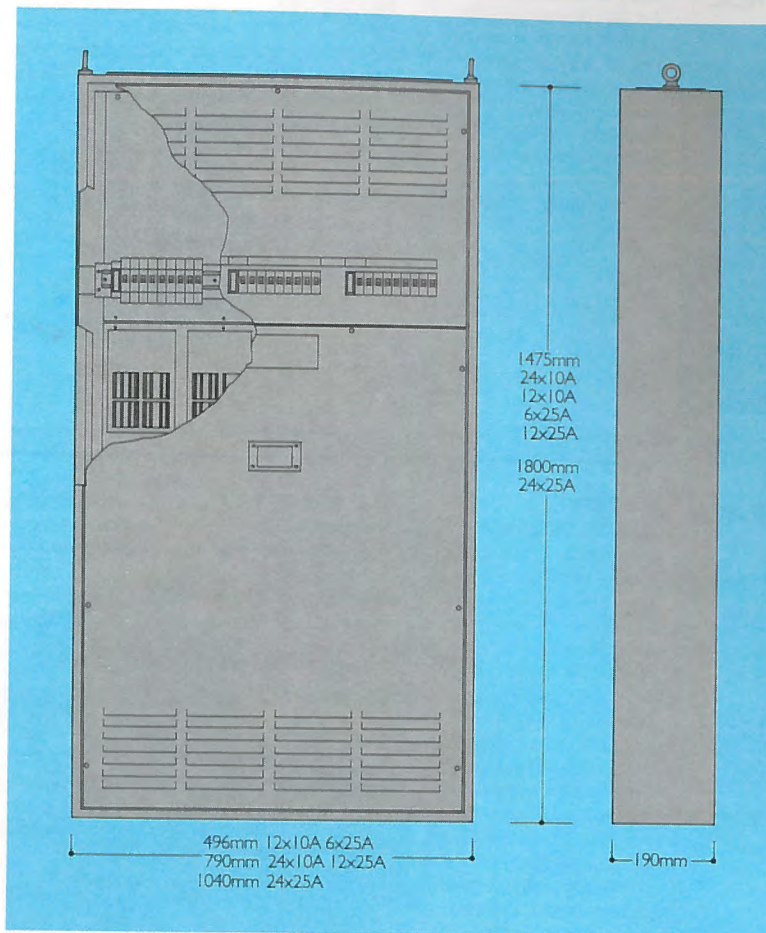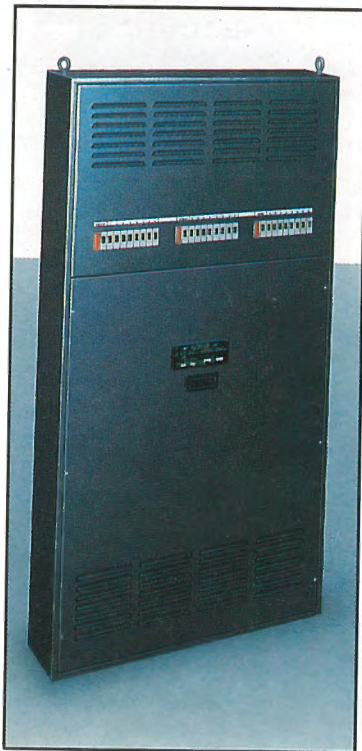
Permus Dimmer Racks with MCB's	
24 x 25A Rack	**06 024 25**
24 x 10A Rack	**06 024 10**
12 x 25A Rack	**06 012 25**
12 x 10A Rack	**06 012 10**
6 X 25A Rack	**06 006 25**

For Multiplex control input versions of the above, add suffix/**MUX** to each code number.

1475mm
24x10A
12x10A
6x25A
12x25A

1800mm
24x25A

496mm 12x10A 6x25A
790mm 24x10A 12x25A
1040mm 24x25A

190mm

A range of professional dimmer racks in 10A and 25A sizes. Now provided with MCB's as standard.

- Extremely shallow.
- No rear access required.
- Analogue or multiplexed input.
- Hard-fired thyristor dimmers.

- Meet BS800 and VDE 0875 RFI suppression standards.
- 45A dimmers available to special order.

PLUG-IN PROFESSIONAL DIMMER RACKS
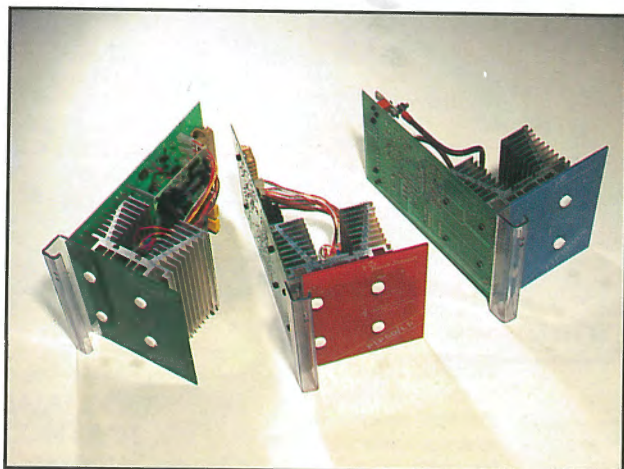
P lug-in dimmer modules offering a variety of options and specifications.

- No rear access required.
- 10A, 25A and 45A modules available.
- Linear power law specification LP type.
- High specification CS type for closed loop operation, square law response.
- Analogue or multiplexed input.

- 10A and 25A MCB protected.

LP SPECIFICATION ANALOGUE CONTROL

48 x 10A	**00 650 30**
24 x 10A	**00 650 31**
24 x 25A	**00 650 32**
12 x 25A	**00 650 33**

CS SPECIFICATION ANALOGUE CONTROL

48 x 10A	**00 660 30**
24 x 10A	**00 660 31**
24 x 25A	**00 660 32**
12 x 25A	**00 660 33**
6 x 45A	

To special order only.

For Multiplex control input versions of the above, add suffix/**MUX** to each code number.

14 Strand Lighting

01 560 3171

ARCHITECTURAL LIGHTING

CONTROLS AND DIMMERS

An essential part of any stage or television production, the creative use of light can be equally valuable in other buildings. Yet so often, inflexible, on/off wall switching is still the norm for many public places where programmable lighting has so much to offer.

Consider the opportunities in an hotel restaurant. Different times of day call for different treatments – a bright and cheerful environment for breakfast, lighting that eliminates gloomy interiors and complements daylight for lunchtime, moving towards softer, more relaxed lighting for afternoon tea and early evening. The mood can then change again for dinner, a time for subtle lighting with discreet pools of light to match the intimacy of candlelit tables.

A meeting room that is used for a variety of purposes needs different lighting conditions at random times – such as a well-lit conference table, dimmed lights for showing slides or a video film, or an emphasis more on visual interest than functional lighting for informal occasions.

What applies to hotels and restaurants also applies in similar ways to shops and stores, conference and leisure centres, museums and galleries, modern office complexes, churches, hospital areas and many other types of building. All have a need for controllable lighting which can meet a range of requirements in terms of aesthetic appearance, function, energy-saving or special effects.

Flexibility with simple control

Lighting 'scenes' are created through different combinations of the directional distribution of light and its intensity. Transitions must also take place between scenes, with fade rates to suit the occasion. But how are these subtle effects to be achieved when building users are not trained lighting technicians?

Strand's expertise in programmable lighting has been applied to the development of special dimmers and controls for architectural lighting which provide maximum flexibility with user-friendly control panels.

Latest in this range is the new digital Microdimmer – a range of unit dimmers which when grouped together behave as a miniature memory control system. This 'scene-setting' feature provides an easy way to record a number of lighting Presets for a room, each one suited to a different occasion. Playback of the Presets is achieved from pushbuttons or an elegant range of remote Control Stations.

Very complex lighting requirements in the largest buildings will involve Environ programmable control systems together with Strand's rack mounted dimmers. Incorporating dimming and control as a central feature in a lighting plan increases the efficiency of a building and contributes to its maximum utilisation as an asset. Strand specialists in architectural lighting are ready to advise specifiers, builders and building users on any aspect of efficient lighting control.
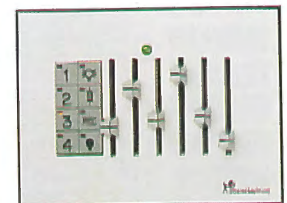

LIGHTING FLEXIBILITY THROUGHOUT THE DAY
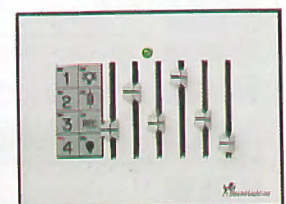### Scene setting with Microdimmers
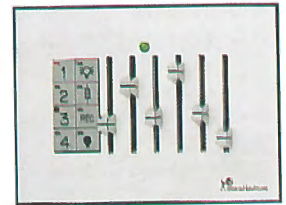
● A bright and welcoming hotel breakfast with uplighting to complement the early morning sun.
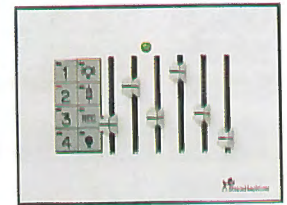
● Another Preset creates the scene for a business lunch.

● And a choice of evening settings. A restful ambience for a relaxed meal.

● Or a subtle candlelit effect for a romantic atmosphere.

Strand Lighting **15**
☎ 01 560 3171

ARCHITECTURAL LIGHTING
CONTROLS AND DIMMERS

SCENES FOR BUSINESS AND LEISURE

- Hotels
- Restaurants
- Conference Centres
- Showrooms
- Galleries and Museums
- Shops
- Schools and Colleges
- Clubs and Pubs
- Offices
- Theatres and Cinemas
- Churches
- Residential
- Airports
- Hospitals

AT WORK OR LEISURE MICRODIMMER SETS THE SCENE
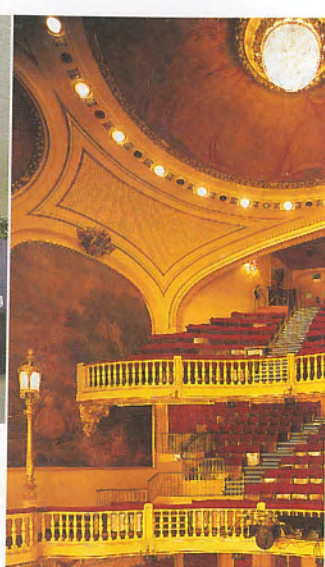
In any environment, well designed lighting with effective control makes an important contribution to efficiency and comfort. The possibilities available from a fixed lighting scheme can be extended to a surprising degree by including Microdimmer for control.

Microdimmer offers flexibility without fuss – today's solution for digital lighting control.

From informal business discussions to a slide presentation or at a formal meeting, Microdimmer preset levels are quick to respond to the flexibility and variety of working needs.

MICRODIMMER

UNIT DIMMERS					RATING	TYPE	Cat No.
	DIMENSIONS						
	H	W	D	Wt			
Microprocessor based unit dimmers which can operate alone or with Remote Control Stations. A sophisticated inbuilt memory records preset lighting states and fade rates.	216	112	77	1.75	5A	Universal	09 502 05
	216	112	92	1.85	10A	Universal	09 503 10
	216	170	97	2.30	20A	Universal	09 504 20

CONTROL STATIONS FOR USE WITH MICRODIMMERS (WHITE FACE PLATE)	Cat No.
Preset Select Control Station	09 611 08
Preset Select Control Station with Bargraph	09 612 18
Preset Control Station with 1 Fader	09 613 01
Preset Control Station with 2 Faders (to control 2 Microdimmers)	09 614 02
Preset Control Station with 3 Faders (to control 3 Microdimmers)	09 615 03
Preset Control Station with 4 Faders (to control 4 Microdimmers)	09 616 04
Preset Control Station with 6 Faders (to control 6 Microdimmers)	09 617 06

Note: Control Stations supplied complete with white face plate. Alternative face plates (only) are available as Accessories, either in dark anodized or brass finish.

ENVIRON 2

PRESET DIMMERS					RATING	TYPE	Cat No.
	DIMENSIONS						
	H	W	D	Wt			
Modular plug-in automatic dimmers which can be configured into a dimming system comprising a mixture of tungsten or fluorescent loads.	270	135	210	3.5	6A (1.5kW)	Tungsten (P)	09 802 05
	270	135	210	4.0	16A (4kW)	Tungsten (P)	09 812 02
	270	135	210	5.5	32A (7.5kW)	Tungsten (P)	09 822 0T
	270	135	210	3.5	6A	Fluorescent (P)	09 832 07
	270	135	210	4.0	16A	Fluorescent (P)	09 842 04
	270	135	210	5.5	32A	Fluorescent (P)	09 852 01

CONTROL STATIONS FOR USE WITH ENVIRON 2 PRESET DIMMERS	Cat No.
1-Gang Preset Outstation (4 Pushbutton)	09 410 03
2-Gang Preset Outstation (8 Pushbutton)	09 420 00
3-Gang Preset Outstation (12 Pushbutton)	09 430 08
6-Gang Preset Outstation (24 Pushbutton)	09 460 0T
1-Gang UP/STOP/DOWN Outstation (3 Pushbutton)	09 880 02
2-Gang UP/STOP/DOWN Outstation (6 Pushbutton)	09 881 08
2-Gang UP/STOP/DOWN Outstation (9 Pushbutton)	09 882 03

MANUAL DIMMERS					RATING	TYPE	Cat No.
	DIMENSIONS						
	H	W	D	Wt			
Modular plug-in manual dimmers which can be configured into a dimming system comprising a mixture of tungsten or fluorescent loads.	270	135	210	3.5	6A (1.5kW)	Tungsten (N-P)	09 800 04
	270	135	210	4.0	16A (4kW)	Tungsten (N-P)	09 810 01
	270	135	210	5.5	32A (7.5kW)	Tungsten (N-P)	09 820 09
	270	135	210	3.5	6A	Fluorescent (N-P)	09 830 06
	270	135	210	4.0	16A	Fluorescent (N-P)	09 840 03
	270	135	210	5.5	32A	Fluorescent (N-P)	09 850 00

CONTROL STATIONS FOR USE WITH ENVIRON 2 MANUAL DIMMERS

	Cat No.			Cat No.
1-Gang Slider Fader	09 110 18	1-Gang Rotary		09 010 05
2-Gang Slider Fader	09 120 15	2-Gang Rotary		09 020 02
3-Gang Slider Fader	09 130 12	3-Gang Rotary		09 030 0T
6-Gang Slider Fader	09 160 14	Take Control (Fader plus Take Push)		09 100 02
6-Gang Slider Fader with Master	09 160 06	Photo Cell (including mounting bracket)		09 200 07
		Amplifier and Setting Panel (for Photocell)		09 201 02

ENVIRON 2 ACCESSORIES	Cat No.
Strand Rail (Mounting Plate 1 metre): Wall fixing for Dimmer Modules	09 874 07
Mains Connection Box: Mains input for Multi-Dimmer installation	09 872 06
Busbar Connecting Set: Links between Modules and to Mains Box	09 871 00
Multi-Phase linking kit: Links Earth and Neutral in 3 Phase installations	09 873 01

Note: All measurements are in millimetres and weights are in kilogrammes.

Strand Lighting

17

☎ 01 560 3171

ECONOMY AND MINI UNIVERSAL DIMMERS

ECONOMY DIMMERS					DIMENSIONS				RATING	TYPE	Cat No.
					H	W	D	Wt			
Cost-effective dimmers supplied with local rotary control. Can be used with optional remote outstations including UP/STOP/DOWN or three preset control.					370	260	105	4.75	Dual 6A	Tungsten	**09 750 06**
					370	260	105	4.75	16A (4kW)	Tungsten	**09 751 01**
					370	260	105	4.75	16A	Fluorescent	**09 752 07**

MINI UNIVERSAL DIMMERS	DIMENSIONS				RATING	TYPE	Cat No.
	H	W	D	Wt			
Compact unit dimmers provided with an ON/OFF switch and a local rotary control, or for use with optional manual remote outstations.	155	155	53	1.4	5A	Universal	**09 750 05**

CONTROL STATIONS FOR USE WITH ECONOMY AND MINI UNIVERSAL DIMMERS		Cat No.
⊡	1-Gang Rotary Outstation	**09 010 05**
⊟	2-Gang Rotary Outstation	**09 020 02**
⊞	3-Gang Rotary Outstation	**09 030 0T**
⎸	1-Gang Slider Fader Outstation	**09 110 18**
⎹⎸	2-Gang Slider Fader Outstation	**09 120 15**
⎹⎸⎸	3-Gang Slider Fader Outstation	**09 130 12**
⎹⎸⎸⎸	6-Gang Slider Fader Outstation	**09 160 14**
⎸.	Take Control Outstation (Fader plus Take Push)	**09 100 02**

With 16A versions of Economy dimmers, UP/STOP/DOWN controllers may also be used.

		Cat No.
⎸	1-Gang UP/STOP/DOWN	**09 880 02**
⎹⎸	2-Gang UP/STOP/DOWN	**09 881 08**
⎹⎸⎸	3-Gang UP/STOP/DOWN	**09 882 03**

FLUORESCENT DIMMING BALLASTS

Fluorescent lamps can only be dimmed when controlled through suitable dimming ballasts. Usually, fluorescent luminaires need to be converted for dimming by employing a circuit compatible for the type of tube used and matched to an appropriate dimmer module. **For further information consult the Strand Guide to Fluorescent Dimming.**

Note: All measurements are in millimetres and weights are in kilogrammes

FLUORESCENT TUBE				BALLAST		CHOKE		SUPPLY VOLTS
T	ø(mm)	LENGTH	WATTS	Wt.	Cat No.	Wt.	Cat No.	
T12	38	600	2x20	1.5	**09 320 06**	–	–	240V, 50Hz (High Voltage Cathodes) (220V versions can be supplied)
T12	38	1200	1x40	1.5	**09 320 06**	–	–	
T12	38	1500	1x65	2.75	**09 310 09**	–	–	
T12	38	1800	1x75/85	2.75	**09 300 01**	–	–	
U-Tube		525x120	1x40	1.6	**09 350 08**	–	–	
T8	26	600	1x18	0.48	**09 212 40**	0.57	**09 213 12**	240V, 50Hz (220V versions can be supplied)
T8	26	1200	1x36	0.48	**09 212 40**	0.65	**09 213 14**	
T8	26	1500	1x58	0.48	**09 212 40**	1.12	**09 213 15**	
T8	26	1800	1x70	0.48	**09 212 40**	1.12	**09 213 16**	

PROGRAMMABLE LIGHTING CONTROL SYSTEMS

Master Station
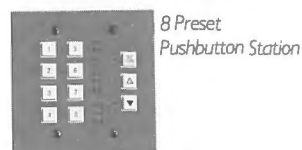
8 Preset Pushbutton Station

Fader Station

Room 1

Room 2

Room 3

Programme Module Enclosure

Dimmers and Demultiplex
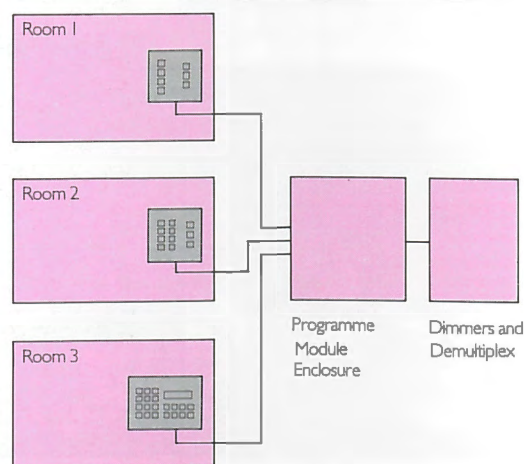
Each programmable system is configured with suitable dimmers (either plug-in modules or Dimmer Racks) to specific requirements.

18 Strand Lighting

☎ 01 560 3171

AUTOMATED LIGHTING SYSTEMS

N ew developments in technology can create opportunities for further improving entertainment lighting. Recent advances in the fields of robotics and microprocessor control have enabled Strand to lead the way in developing a new generation of automated lighting, characterised by quiet, accurate operation and memorisation of position. First came the Showchanger range, designed for rapid fire movement and the demands of live music, now followed by PALS, designed for absolute precision and repeatability.
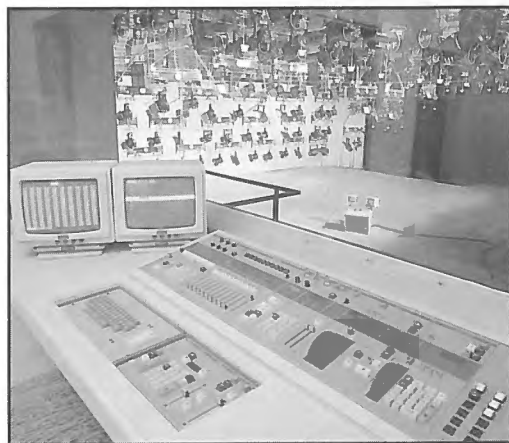
View from the lighting control room through to the studio.

PALS –
PRECISION AUTOMATED LIGHTING SYSTEMS

A PALS system can bring new economies and creative possibilities to all kinds of productions. Most professional luminaires in the Strand and Quartzcolor ranges can now be supplied as motorised units. Motor drive assemblies, processor board and drive electronics are safely and compactly housed in a rectangular section steel yoke. (See page 20 for availability of systems.)

This new television studio in Hannover has probably the world's most sophisticated automated lighting facility. A studio floor control panel allows both lighting levels and positions to be adjusted to a high degree of precision.

PALS TECHNICAL FEATURES

P ALS – the Precision Automated Lighting System – offers just what its name implies: high resolution and repeatability of positioning. The light will return **precisely** to its recorded position with an accuracy of ± 1/3°, as instructed by either the PC Controller or Galaxy 3.

1 PALS MOTORISED LUMINAIRES

Motorised Professional luminaires in the Strand and Quartzcolor ranges are equipped with:

- Rigid steel yoke to house motor drive assemblies and electronics.
- 16 bit on-board microprocessor.

- Available functions include pan, tilt, focus, iris and colour.
- Low voltage DC servo motors.
- Clutch protection to prevent damage when moved manually.

2 COLOUR CHANGERS

Selected luminaires can be provided with rapid, quiet scroll-type colour changers.

- 10 colours plus clear.
- Two versions available:
  Dependent – for use with automated yokes.
  Independent – with on-board electronics for use without automated yokes.

3 DISTRIBUTION SYSTEM

Each PALS system requires a simple distribution system to provide power and data to the luminaires.

- 3-way and 10-way power supplies for providing 24V DC to motors.
- 40-way data distribution box to amplify and protect the control signal.
- All data transmitted over high speed digital communications protocol.
- Each colour change provided with 10 colour gel string

T here is a choice of two control systems for Strand Precision Automated Luminaires.

4 GALAXY 3 MOTION CONTROL PANEL

The new Galaxy 3 console offers integrated recording and playback of dimming and motion cues when fitted with specialised electronics and motion control panel.

- Up to 99 channels of control, each with 12 functions.
- Electronic patching for motion and dimming channel assignment.
- Position control provided by four high resolution wheels.
- VDU display of all aspects of luminaire positioning.
- Dedicated keypad for luminaire call-up and position or colour setting.

- LED windows for immediate unit and positional reference.
- Blind plotting or modification.
- Local recording of motion cues.
- User-selectable home positions for each luminaire.

5 PC CONTROLLER

Custom application software and interface card with an IBM PS/2 Model 30 personal computer are provided by Strand as a compact, efficient control system for PALS luminaires.

- 99 channels, each controlling four functions.
- 20 megabyte hard disc for cue storage.
- Library storage provided by 3½" diskette.
- Dedicated keyboard for luminaire positioning and cue recording.
- On-line help for immediate access to command instructions.

- Recorded times.
- Cue editing.
- Auto-follow and delays for creation of special effects.
- Colour display of channels and numerical positioning.

PALS FUNCTION AVAILABILITY

Luminaire/Function	Pan & Tilt	Focus	Iris	Lampswitch	8" colour scroller	10" colour scroller
Cantata F & PC	●	●			●	
Cantata Profiles 11/26, 18/32, 26/44	●		●		●	
Cadenza F & PC	●	●				●
Cadenza Profiles 9/15, 12/22, 19/32	●		●		●	
Punchlite	●				●	
Pollux	●	●				
Castor	●	●				
Bambino 5kW	●	●				
Arturo 1.25/2.5kW,2.5/5kW	●			●		
Beamlite	●	●				

MEMORY SYSTEM SERVICING SECOND TO NONE

THE ELEMENTS OF A PALS SYSTEM

|	
1	PALS motorised luminaires
2	Colour changers
3A	Power supply box
3B	Data distribution box
4	PC controller
5	Galaxy 3 motion control panel
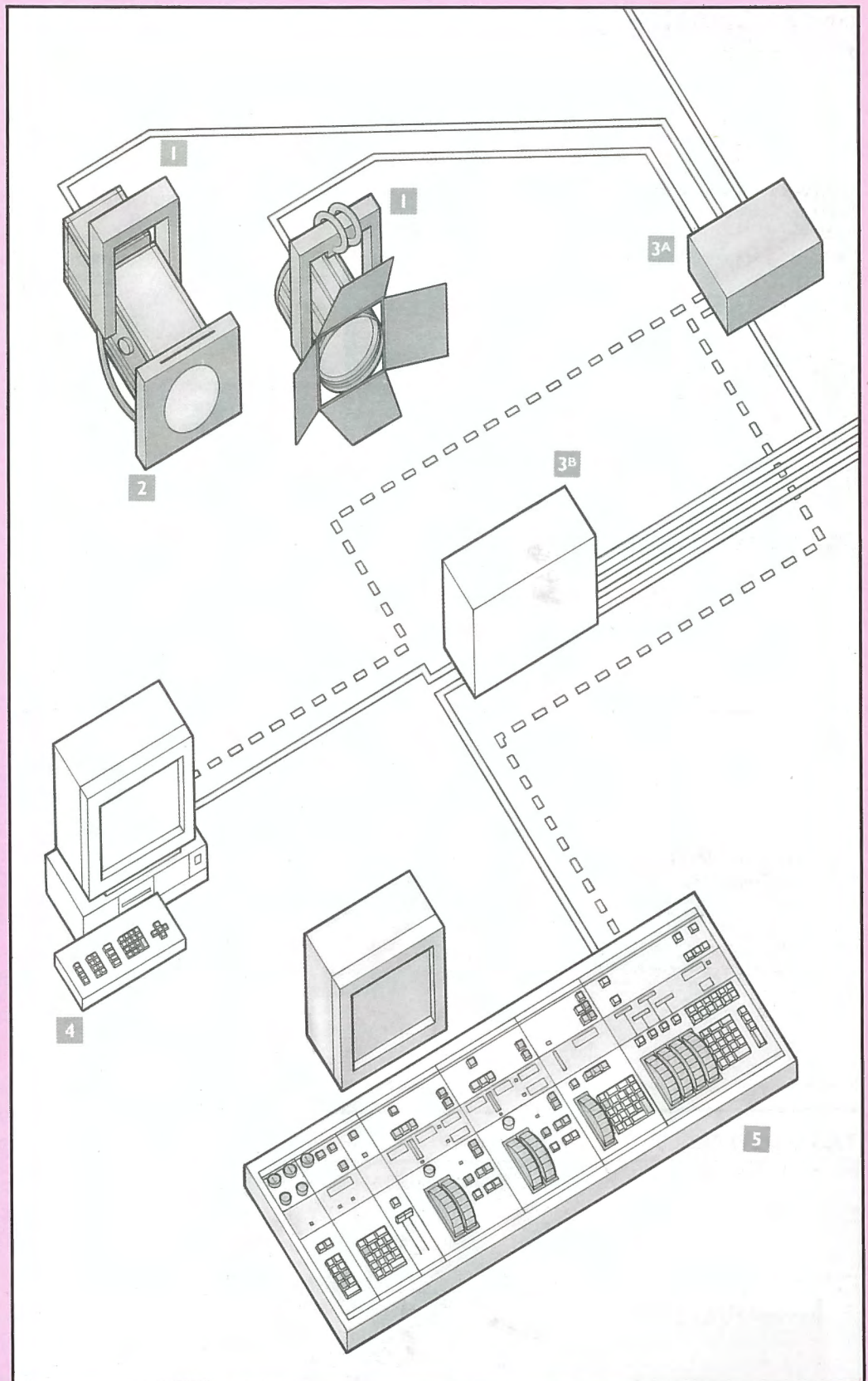
PC Controller and VDU
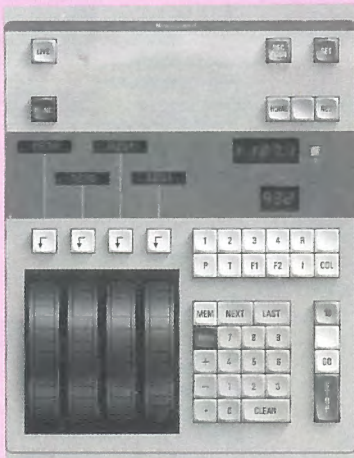
Galaxy 3 Motion Control Panel

SHOWCHANGERS FOR SPECIAL EFFECTS

Showchangers make possible many dramatic special effects through remotely-controlled high speed movement and colour changes. The special motorised spotlights are controlled by a Taskmaster control system for 'stand alone' operation, or for incorporation into a Lightboard M console.

PARSCAN II 1000W
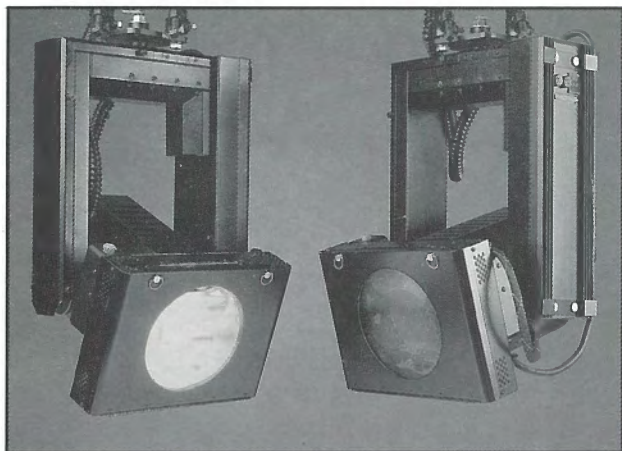
Recently redesigned for greater accuracy, speed and quieter operation, the new Parscan II offers many new features.

- 360° rotation.
- 220° tilt.
- Modular electronics for ease of replacement and repair.
- Variable speed settings.
- Increased speed, decreased noise.
- Conforms to all European safety regulations.
- Integrated 16 frame scroll-type colour changer.
- Circuit breaker protected.

Motorised Par 64 spotlight with integrated colour changer provided with six colour starter gel string.

76 054 15

Accessories

Power Supply Unit
24V DC power supply for use with Parscan II, capable of driving up to six Parscans.
76 055 75

Buffer Box
Required for installations with more than 6 Parscans. Provides the electronic isolation circuits required to maintain signal data over large Showchanger rigs.
76 055 61

Splitter Box
Enables up to seven data cables to be paralleled together (1 input to 6 output) to provide a 'star' type of connection system.
76 055 52

Cables
Standard multicore data cables which transmit multiplexed data, low voltage power from the controls to each Parscan.

3 metre cable	**76 355 10**
8 metre cable	**76 355 11**
15 metre cable	**76 355 12**
30 metre cable	**76 355 13**

Tape
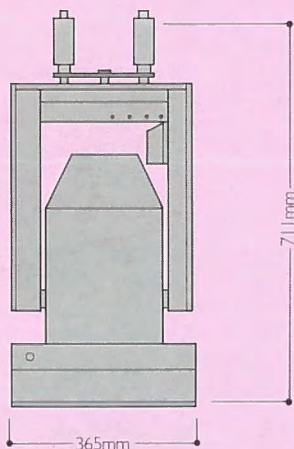Specialised high temperature industrial tapes for assembling colour strings.

White tape	**76 055 20**
Black tape	**76 055 21**
Silver tape	**76 055 22**
High temperature clear tape	**76 055 23**

Static — 711mm — 365mm
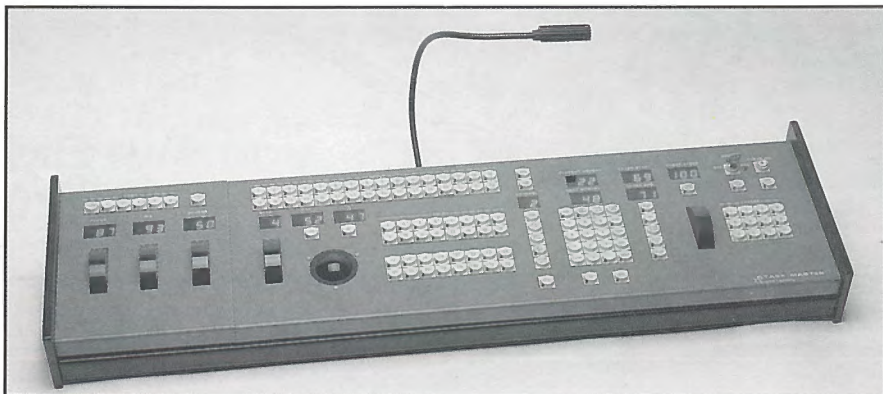
Dynamic — Scale 1:15 — 464mm — 749mm — 546mm

Weight 14.4kg
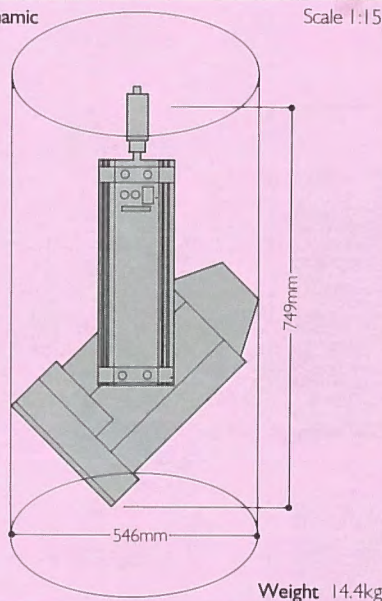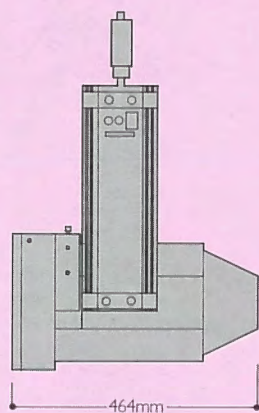
TASKMASTER

Control system for the new Parscan II designed to operate alone or to be incorporated into a Lightboard M console.

- 99 channels.
- 250 memories.
- 32 groups.
- 12 programmable chase routines.
- 3½" disc drive for library storage.
- LED windows for display of luminaire and memory numbers.
- Track ball position control with single axis lockout.
- Hold function for channels or groups.

Taskmaster memory control system for Showchangers, complete with disc drive, 2 metres of mains cable and 8 metres of data cable.
76 056 42

Taskmaster control module for addition to Lightboard M – use appropriate Lightboard M catalogue number with **TM** suffix.

STAGE LIGHTING
A GUIDE TO LIGHTING THE SMALLER SCALE PRODUCTION

Whatever the scale of a production – amateur or professional – lighting like other design processes is based on a sequence of logical decisions plus a good measure of creative inspiration.

This brief guide offers a sequence of step-by-step decisions to form the basis of a lighting process for the smaller scale production. It has been prepared by a lighting designer with experience of working on productions of all types and sizes. Strand hope that it will be especially helpful to amateur groups, small touring companies and educational theatre.

PLANNING

Read Script at least twice (first for overall 'feel' and then for detail) concentrating on text rather than the stage directions which the director may well ignore – especially those in an 'acting edition'. If a musical, listen to the music until absorbed.

Discuss with the director, choreographer, set and costume designers, how the script will be staged and the contribution to be made by the lighting. Will light select acting areas? And/or will it establish shifts in atmosphere? Are there any particularly special effects?

Decide Style of the 'lighting look'. Will it be softly diffuse or have stabbing beams? How directional? How selective? How atmospheric? Will the colours be subtle tints? Or more strongly romantic hues? Or more saturated contrasty statements? Or a penetrating white? How naturalistic?

Establish Priorities for the allocation of resources. There is rarely enough equipment or time to meet all the requirements of our ideals. How vital is that two minute special effect? Enough to justify removal of two lights from two hours of general use?

Divide Stage by Areas for independent selection determined by the production's requirements (at actor eye level which does not correspond to the area of lit floor). Musicals may have symmetrical areas of uniform size but drama areas are rarely symmetrical in size, shape or distribution.

Divide Stage by Colours if colour is to be a variable. Which areas in a drama need both warm and cool toning? Can some be neutral? In a musical where do we need more saturated 'reds' and 'blues' (and 'ambers'?) in addition to face 'neutrals'.

Determine Essential Specials where the light beam's size or shape is so critical that one of the generally set area lights will not suffice. Also determine essential special effects. Double check priorities.

Choose Lighting Positions to give the best available angles for lighting the chosen areas in the chosen colour ranges. And position the specials and the effects.

Allocate Lighting Instruments starting with the ideal type for each position, then reallocating to make the best use of equipment actually available.

Select Colours by converting general 'warm', 'cool', 'reddish', 'bluish', 'amber', 'hot', 'fruity' etc into specific colour filter numbers.

Complete Paperwork including lighting layout plan; equipment, colour and cable lists; cue synopsis.

Communicate Intentions to electrics crew, stage manager, scene designer and director by giving them photocopies of lighting plan and cue synopsis. Point out to them anything vital that they might otherwise overlook.

Check Intentions by comparing the observed action at rehearsal during each cue state with the planned areas, colours, specials as noted in the cue synopsis.

Prepare Equipment by checking all adjustments for free movement and positive locking. Clean and flash-out all spotlights. Don't forget accessories. Visual check of all cables for insulation breaks and loose clamping at plugs and sockets.

IN THE THEATRE

Rig as plan, paying particular attention to mechanical safety. Fit barndoors, masks, gobos, colours etc. Flash-out, checking plan numbers correspond to dimmerboard numbers.

Focus each light to predetermined position on stage, checking actor lights by moving around all positions which are intended to be lit by a particular spotlight. Check for required beam edge quality – normally soft and, as far as possible, 'lost' on set.

Plot each cue state by selecting appropriate lights and balancing their intensities on the dimmers to give the required lighting pictures. Use a 'body' to walk the actor positions and do not hurry the writing down of the levels.

Rehearse any difficult cues before the dress rehearsals. After these rehearsals, some rebalancing and refocusing is almost inevitable.

Perform with maximum concentration. If anything goes wrong, correct very very slowly and smoothly. If nervous actors head for black spots, try to help them – but slowly and smoothly.

Get-out carefully after the final performance. Put away all equipment as you would hope to find it next time.

Conduct Post Mortem with the rest of the production team to compare hopes with reality, so that next time . . .

THE CONTRIBUTION OF LIGHTING

STAGE LIGHTING
A GUIDE TO LIGHTING THE SMALLER SCALE PRODUCTION

The overriding priority just has to be **visibility.** Having decided what we want the audience to see, we must ensure that they see clearly and without strain – if in any doubt, up half a point in brightness!

But this can be a **selective visibility** concentrating the audience attention on chosen parts of the stage action.

The lighting can contribute to the **atmosphere** of a scene. In a naturalistic play this can mean a light quality that conveys the season of the year, the time of the day and the state of the weather. Or it can be emotional messages from colour tonings of cool sadness to warm happiness. Or perhaps the menace of contrasts between light and shade.

Light should always **enhance** the look of a production, helping to reveal the form, colour and texture of all components of the stage picture whether scenic elements or actors.

And Lighting's contribution can be totally **fluid** – particularly in terms of *selectivity* and *atmosphere* – whether by sudden dramatic contrasts or subtle subconscious shifts of emphasis.

LIGHTING THE ACTOR

Perhaps the most fundamental problem in lighting an actor is that the most selective light (and the one throwing minimum shadow behind the actor) is the one that shines vertically down. Yet this does not reach the actor's eyes and teeth (Fig 1).

To enable the actor's face to be seen, light must come from a position to the front of the actor (Fig 2).

So when considering the size and shape of stage areas to be lit, it is important to remember that we are referring to light at the actor's face level – and that this does not normally correspond with the lit area of stage floor.

Thus an actor may stand within a pool of light on the stage floor yet his face will miss the light (Fig 3).

Or indeed the actor may stand outside that pool of light while his face is fully lit (Fig 4).

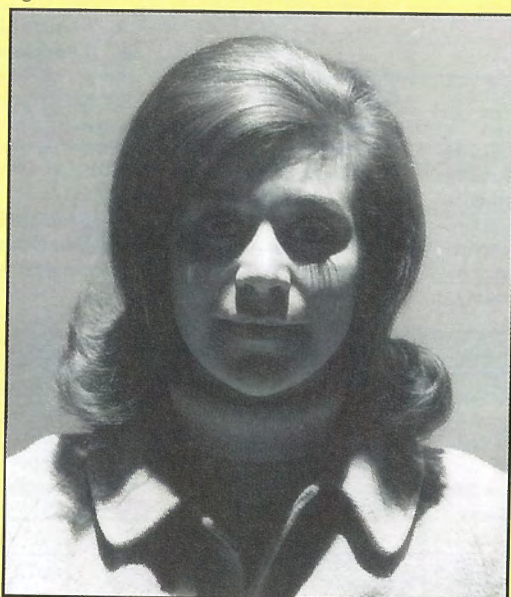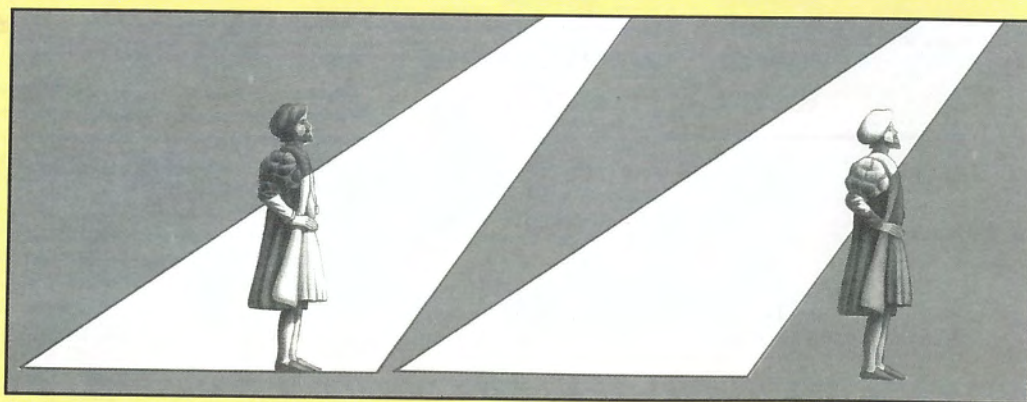**So we must think in section,** as well as in plan!

Fig 1

Fig 2

Fig 3

Fig 4

SOME PITFALLS

Concentrating on a few moments of special effects at the expense of general lighting for the whole evening . . . dividing the stage into too many tightly defined areas for the amount of available equipment . . . failing to overlap areas, upstage and downstage in addition to left and right . . . choosing colours, especially in a musical, that do not give a sufficiently contrasty palette . . . placing too much faith in logic and realism rather than theatricality . . . focusing with beam edges that are too hard and therefore too noticeable . . . being too ambitious for the time available to rig, focus, plot and rehearse.

DIVIDING THE STAGE

DIVIDING BY AREA

Once decisions have been made about the kind of contribution that we expect lighting to make to the production that we are planning – and these contributions have been put into some sort of order of priority – we need to break down the stage area into the segments over which we require independent selective control. The required breakdown may be symmetrical, in which case the stage plan will be divided into something that resembles a series of areas of different sizes corresponding to the placing of the action. Of course it could well be that there is no need for division into what it is useful to call *production areas*: all the stage may be in use all the time. In this case a simple division into centre and sides will allow balancing for maximum 'enhancement' of the look of the scene.

Note: Adjoining areas overlap – both side to side and back to front. And remember that these are areas where an actor's head is to be lit – they are unlikely to be the same as the light patterns on the floor.
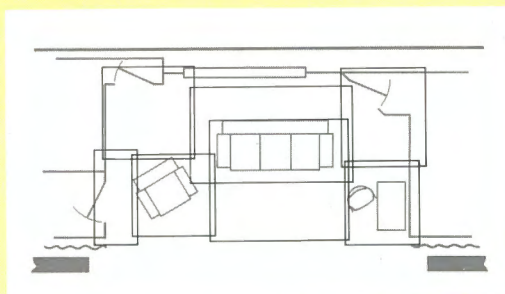
AREA PLANNING FOR A PLAY

In this naturalistic play – possibly but not necessarily in a box set – the areas are determined to a considerable extent by the positions of furniture and doors. And the lighting is expected to make some logic in terms of practical light fittings (table lamps, wall brackets, etc) and the natural sunshine and moonshine coming through windows (including those in the audience's 'fourth wall'). In this particular example, we have a play where it is desirable to focus attention at various times on the sofa, the armchair, the table (with that essential tool of modern drama, a telephone) and the doors. These doors are tremendously important in any drama: some of the key appearances and speeches are made there. But for a long intimate scene on the sofa, it is useful to concentrate on that sofa and loose peripheral areas like the doors. Consider the seven areas shown here in terms of possible combinations: the *area palette* gives the director a wide range of selectivity of audience vision – whether a subconscious fluidity (slow cues that are not obvious) or an area selection obviously linked to the switching of the practical lamps.
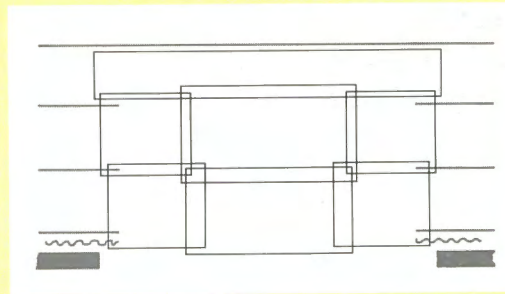
AREA PLANNING FOR A MUSICAL

Musicals tend to have many scenes and many selective and atmospheric light changes within these scenes. Therefore, unless there are many – very many – lights available, the breakdown into areas has to be very general. In this example the breakdown is symmetrical because, as in so many musical productions, the settings consist of a symmetrical series of wings leading to a backcloth, possibly a skycloth. With the addition of cloths and scenic pieces, the method of staging gives a flexible masked acting area with the possibility of sufficient open space for dancing and lots of entrances for a large chorus to get on and off quickly. In most musicals the big moments are staged in the downstage areas: to help both musical balance and the 'putting across' of numbers to the audience. For the same reasons, much of the essential action takes place centre stage. The most common selective lighting cue is to 'concentrate centre', usually downstage centre, by 'losing the edges'. This suggests a minimum of three areas across the stage – certainly at the front of the stage, and probably also midstage. However, it is often quite practical to consider the whole width of the rear of the stage as one area. This provides a seven area combination that offers an *area palette* giving the director considerable selectivity with the possibility of progressive tightening from back to front and from sides to middle.

DIVIDING BY COLOUR

Does our chosen lighting style for the production include a fluid use of colour? After establishing a breakdown of the stage into areas, the next step is to consider whether any areas need to have controllable variations in colour. Or whether some of the adjoining areas could be grouped together for more general variations from a less selective colour wash.

Note: When working on plans it is useful to define the selected areas and indicate basic colour range by initials such as W, C, N for warm, cool and neutral: or possibly R, O, Y, G, B, A, for red, orange, yellow, green, blue amber in the case of a musical. (To help simplify our plans here, the neutral lights have been coded N. Actual colour filter selection is best postponed until after the position and type of light has been decided).

W = Warm   C = Cool
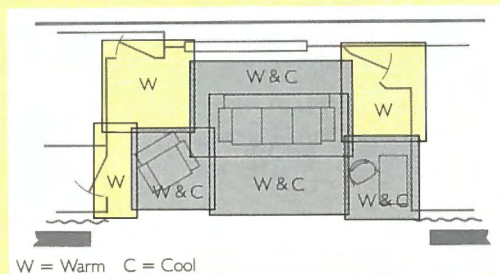
COLOUR PLANNING FOR A PLAY

In a naturalistic play, colour is often used to create a fluid atmosphere that can shift from warm cheerfulness to cool sadness. If an area is lit with some lights in warm tones and some in cools, the dimmers of the control board can be used to achieve a whole series of options from an extreme of the warm colour alone through the neutrality of both together, to the other extreme of cool colour alone. Which (if any) of the areas need to have this kind of 'double cover' of colour tones? In this example, discussion with the director has established that such a *colour palette* seems necessary around the central areas and the desk, whereas the upstage corners and downstage right can manage on a warm tint only – although perhaps one that is a little closer to a compromise neutral than the warms in the mixable areas. In such a naturalistic production the actual colour tints chosen are likely to be quite subtle.

B = Blue   R = Red   Y = Yellow
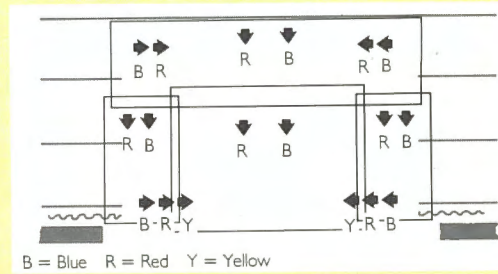
COLOUR PLANNING FOR A MUSICAL

The dialogue scenes of a musical require the subtle colour tones that are appropriate for a naturalistic play. However, the musical numbers, particularly when solo singers can be given isolating visibility from tightly focused follow spots, usually call for strongly atmospheric colouring. And many dance sequences, where the body is relatively more expressive than the face, respond well to positive use of quite strong colour. This example shows a much used technique where the colour is applied in rather broader washes than the areas selected for scene location. The front half of the stage is divided into three areas, each lit from above in rather saturated colours: a hot and cold rather than a warm and cool. The rear half is treated as one area, also with a hot and cold from above. From the side comes further washes, probably in slightly less saturated hues. These may divide the stage into bands: in this case an upstage band and a downstage band, possibly splitting the stage into left and right but just as likely covering the full width. With relatively neutral colour from the front, saturated colours from above and intermediate colours from the side, we have a *colour palette* that offers considerable scope.

SPECIALS

The major proportion of a stage lighting rig is focused to form a palette of areas and colours whose various combinations will provide the desired fluidity of selectivity and atmosphere. However, there are certain lights whose function is so 'special' that they cannot make a significant contribution when mixing the basic palette.

FOR THE ACTOR

Specials usually consist of spotlights set so tightly that the spaces they light cannot be considered as areas. They are often for moments when an actor has to be picked out (perhaps only head and shoulders) on an otherwise blacked-out stage. They need to be listed in a priority order for close scrutiny and reduction to essentials.

FOR SPECIAL EFFECTS

There may be a request for equipment to produce clouds, flames, water, lightning, etc. When listing it is always prudent to remember that such effects can draw attention away from the actor rather than positively support a performance. And if the effect is essential, then the effect of light reflected from fire or water is often more telling than a pictorial representation of the actual fire or water.

FOR THE SCENERY

The proportion of the rig focused on the scenery will be very small. With the exception of skys and back or front cloths, scenery normally gets sufficient general wash from the reflected light bouncing off the stage floor from the lights that have been set for the actors. Indeed, as discussed in the following pages, many of the basic problems of lighting design arise from difficulties in stopping actor light hitting directly on the scenery. Successful lighting of scenery depends on augmenting the diffuse reflected general light by selective highlighting of chosen scenic elements, or parts of these elements. This can vary from bold gashes to soft emphasis. Again, to be listed and reduced to essentials after a debate based on priorities and available resources.

FAX: 01 568 2103

☎ 01 560 3171

STAGE LIGHTING
A GUIDE TO LIGHTING THE SMALLER SCALE PRODUCTION

CHOOSING LIGHTING POSITIONS

LIGHTING FROM THE FRONT

C onsider the effect of a light starting as a vertical downlight on an actor, then moving in a frontal plane until its beam becomes horizontal and then carries on to light from below. How visible will be the actor's face, particularly eyes and teeth? To what extent will face and body be modelled or flattened? What area of stage will be selected and what will be the size and direction of shadows cast on floor and scenery?
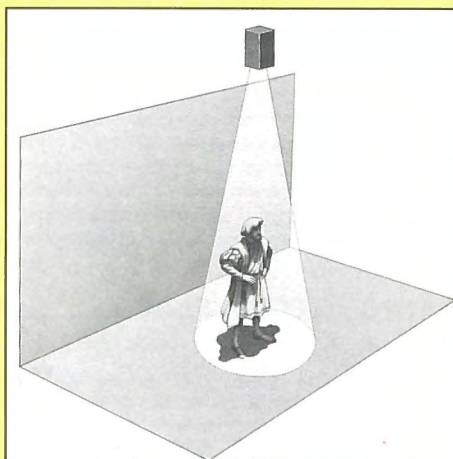
A vertical beam is the most selective light possible. The lit area of stage, and the shadow cast upon it, need be no wider than the widest part of the actor. However, the actor's eyes will be black pools and a highlighted nose will shade the mouth.
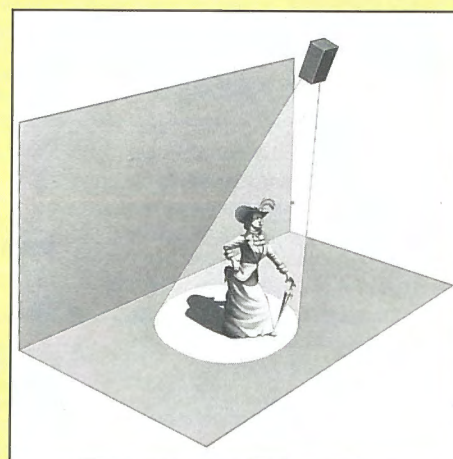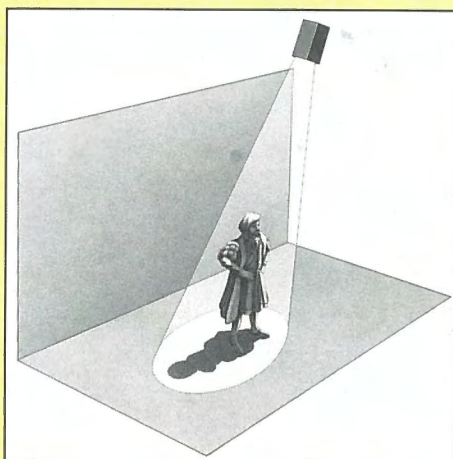
If the light comes from a little forward of the actor, it will start to reach the eyes and mouth (provided that she keeps her chin up and is not defeated by a hat brim!). However, the lit area, and shadow cast, starts to extend upstage from the actor – ie the light is slightly less selective.

LIGHTING FROM THE BACK AND SIDE

N ow consider a light from behind. Then a light or lights from a series of side angles (ie lights at right angles to those considered above). Once again the criteria is visibility, modelling, selectivity and shadows.
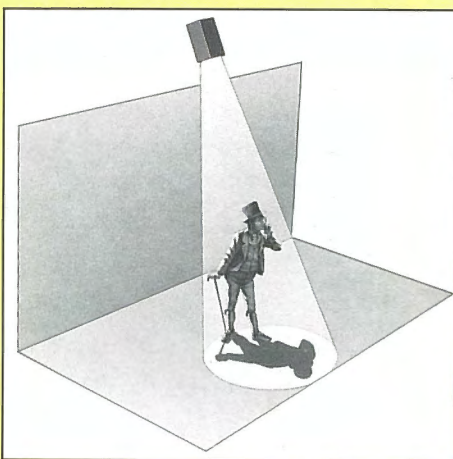
A light source behind the actor does not illuminate the face, but it helps to give depth to the stage by separating the action from the scenery through creating a haze and highlighting head and shoulders. The shadow of the actor is cast forward, helping the selection of areas. Since the light does not fall on the face, strong colours can be used.

If the light comes from a little to one side of the actor, it will start to reach the eyes and mouth on that side. The area lit, and the shadows cast, will extend along the stage floor on the other side.

FINDING THE COMPROMISE

W e normally seek to light an actor for maximum visibility and maximum modelling, with minimum shadow. Additionally, in many productions, we need to select as tight an area as possible. Which combination of angles offers the optimum compromise?
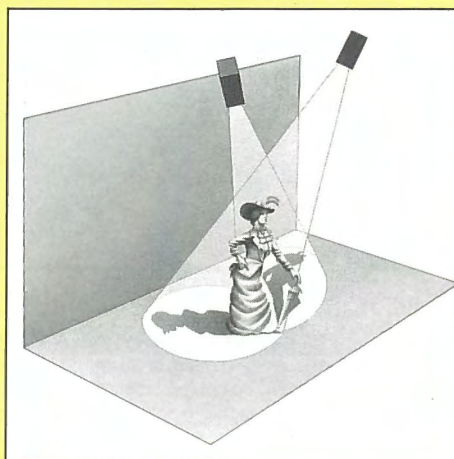
The basic compromise that has long been the standard approach is a pair of beams crossing on to the actor (one for each side of the face) from positions which are both forward and to the side of the actor. The suggested angle is often around 45 degrees in both directions – ie midway between vertical and horizontal; and midway between front and side. However, to restrict the shadows cast and to give a better 'join', the lights are often positioned closer to the vertical and to the centre.
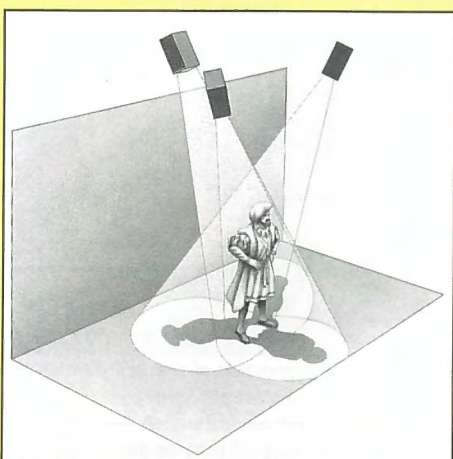
A backlight added to the basic crossed pair brings depth to the scene and generally enhances the 'look' of the actor. The backlight can be used for strong atmospheric colour if required, while the crossed pair maintain a more natural tint on the actor's skin tones. *Note:* The actor is now lit by three beams with a 120° separation between them.

FOR STANDS SEE PAGES 82 & 83
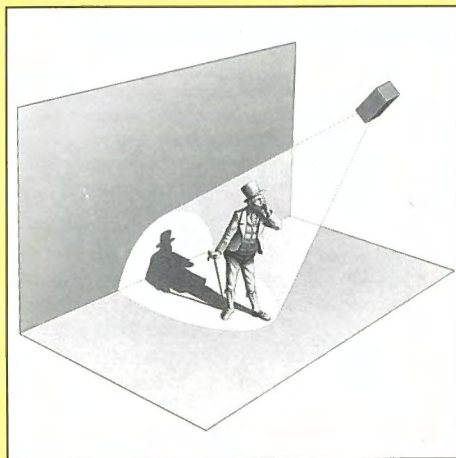
As the lighting comes increasingly from the front, the actor's eyes and teeth receive more light. But the area lit extends further and further upstage, reducing the selectivity and increasing the likelihood of the actor's shadow hitting the scenery.
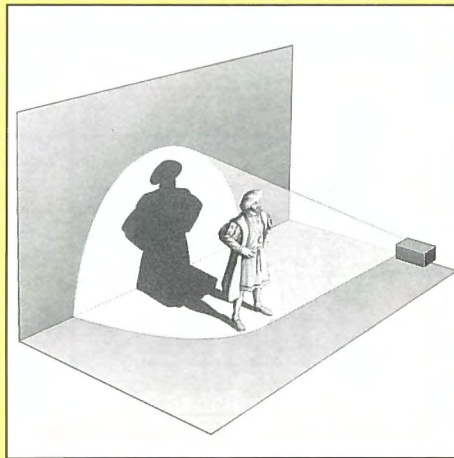

As the light becomes more and more frontal, the actor's features become flattened (and so also does three-dimensional scenery). The lit area and the actor shadows increase until, when the light is horizontal, there is a lit corridor for the entire depth of the stage, and the actor shadows become actor length.
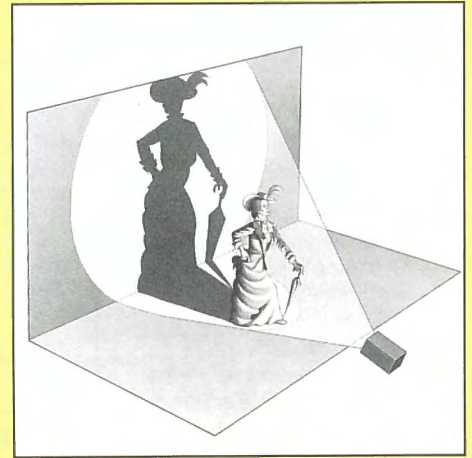

Light from below projects an actor shadow that looms above the actor, rising and falling as she moves towards and away from the light source. When this is the only lighting angle, the effect on the face is not at all natural. But a little from below, usually just reflected light, can help to soften the harshness of light from above.
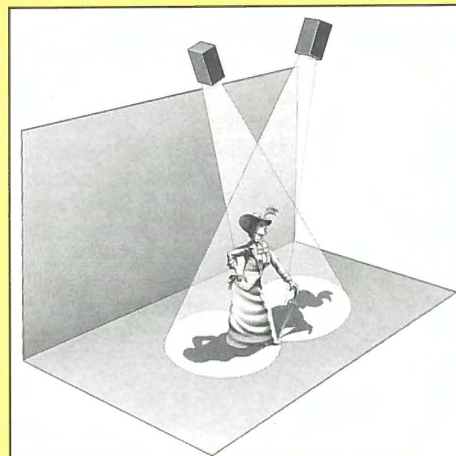

Add a second light source from the other side, and both sides of the face will receive light. However, there is now a second shadow, and the selected area of stage floor extends to both sides of the actor.
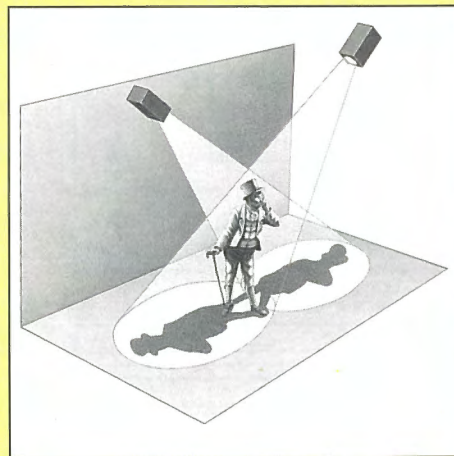

As the side lighting comes from an increasingly lower angle, the shadows will lengthen to both sides of the actor and a larger corridor will be selected across the stage. As the light hits the face from a lower angle, it will light more into the eyes and teeth, although there will still be a tendency towards a central dark line where the beams meet down the centre of the face.
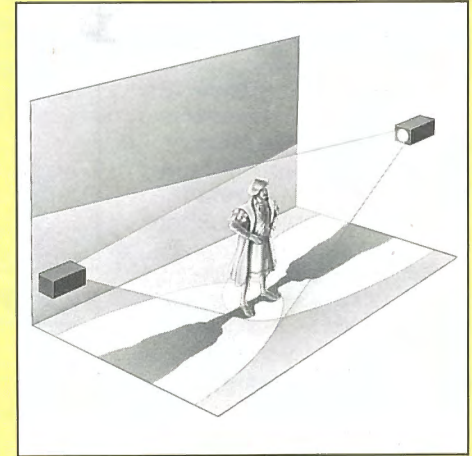

As the angle lowers, side light has an increasingly modelling effect on the actor's face and body. This is particularly important in dance. When the light becomes horizontal there will be a lighting corridor across the whole stage. By focusing just clear of the floor, it is possible to lose shadows into the wings, and the light will only be apparent when an actor stands in it.
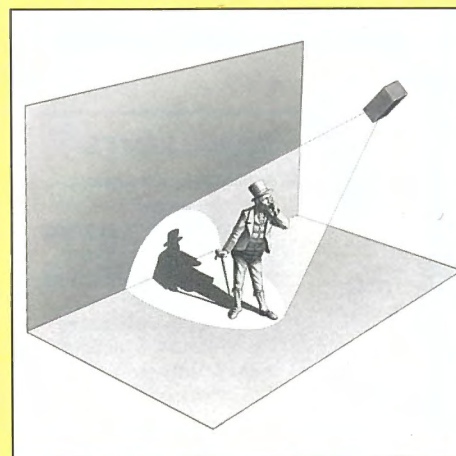
The problem with 'crossed pair' lighting (with or without a backlight) is the extent of the spread of light on floor and scenery beyond the area where the actor's head is lit (remember that head is usually about five feet *above* the floor). Although a single beam can be flat, it can also be quite tight.
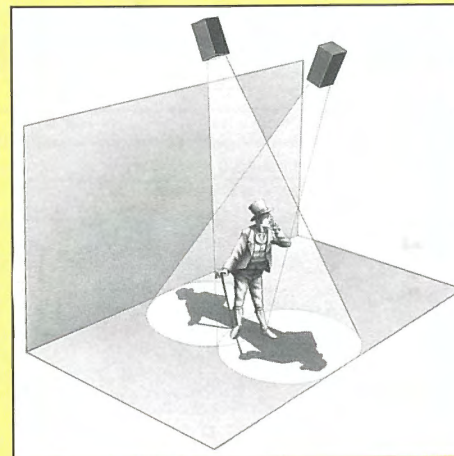
This flatness can be enhanced quite considerably by adding a backlight – and the selectivity is still a tightly controlled upstage/downstage corridor without side spillage.
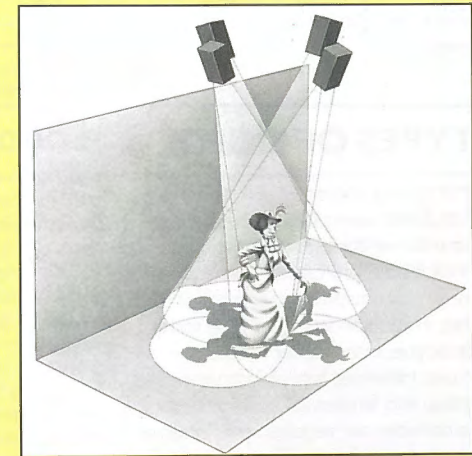

For modelling, side lights can be added and, although they will spread the lit area, they can be at quite steep angles since they do not need to make a major contribution to visibility. *Note:* The actor is now lit by four beams with a 90° separation between them.

Strand Lighting **27**

STAGE LIGHTING
A GUIDE TO LIGHTING THE SMALLER SCALE PRODUCTION

THE DECISION PROCESS

So how does one decide where to put the spotlights? On many stages and in many auditoria there is not much choice: but, to make the best use of the positions available, it is necessary to start from an ideal and compromise that ideal to fit reality. By WHERE we mean *where to put the light* and *where to point it*. Traditional advice involves a lot of crossing of light beams – partly to help model/sculpture the actor by introducing a partially side-light angle and partly because lighting diagonally across a stage provides a bigger spread of light from each lamp: an important bonus when equipment is in short supply. But crossing the beams opens out the area lit and can cast excessive shadows on side wall or masking. And so, with spotlights becoming increasingly versatile as to beam width, there is every reason to consider using the traditionally discredited method of lighting the actor with light coming straight in from the front. Of course if this is the only light, yes it will be flat. (And if the available positions are so low that an actor shadow will be thrown on to the sky, then better to come diagonally – priorities again!) But with the addition of some backlight (even if it is nearly vertical) and some side light, the front-lit actors will come alive and the areas/shadows brought more under control. There need not be precise side lighting for every area: it can often be quite general since it is frequently more important in the big wide areas than in smaller tighter areas (more important, that is, in *priority* terms!).

In the examples shown here, the traditional crossing method has been used for the play, while the actors in the musical are lit 'flat frontal'. But it could be vice versa. Whichever way, *the next stage in the planning is to establish where the lights go and where they point.*
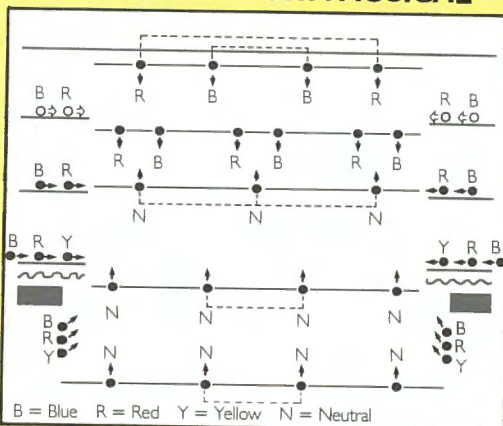
EXAMPLE PLAN FOR A PLAY

W = Warm   C = Cool   N = Neutral
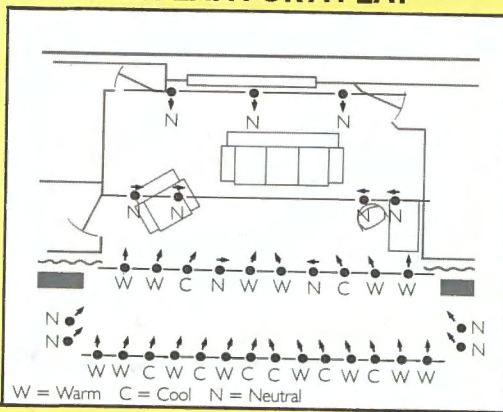
EXAMPLE PLAN FOR 'IN THE ROUND'

W = Warm   C = Cool   N = Neutral
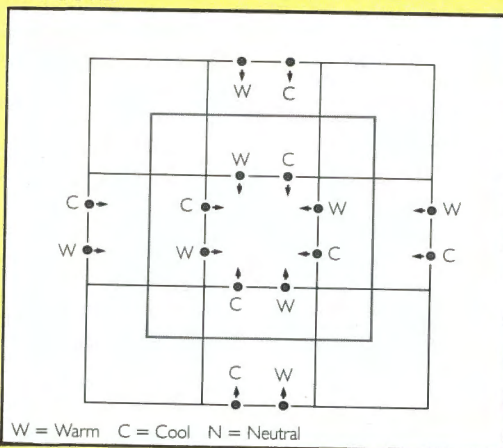
EXAMPLE PLAN FOR A MUSICAL

B = Blue   R = Red   Y = Yellow   N = Neutral

For each area of our play we need two lights: one for each side of the actors' faces. When an area requires a full colour control of cool and warm, the number will double to four spots – a crossed pair in warm and a pair in cool. A spot bar immediately behind the proscenium arch will give a suitable angle for lighting the upstage areas, but for the downstage areas a position in the auditorium is necessary. Red and blue have been used to indicate warm and cool filters in the spots. Green indicates more neutral washes which have been added from back and sides. Not enough equipment? Well, do we *really* need all these areas? And so many of them with both warm and cool? (Back to priorities?) Or rather than a pair, we could use a single straight in – but if so, we must make it really straight in because a single crossing beam does not do much for the other side of the face!

For staging in the round, light needs to come from all sides. And it should be evenly balanced to avoid favouring one segment of audience to an extent that is not really permissible in a staging form so democratic as theatre-in-the-round. To avoid hitting into audience eyes, light has to come from both within the acting area and from outside it. Angles can be closer to the vertical than in other forms of staging because the audience is closer to the actors and thus visibility is 'easier'.

In this musical the actors' visibility light is provided by spots in a neutral colour hitting straight in. The front areas are covered from the auditorium, the midstage areas from a bar just inside the proscenium, and the upstage areas from a midstage bar. If the stage is very wide, two or more lamps may be required for each area as indicated. Strong colour comes from near vertical backlights and medium colour from the wings (on stands, booms or ladder-frames to be discussed under 'rigging').

Note: For clarity, these plans only include actor lights. The play would require light outside the window and on the door backings, while the musical is likely to need a colour mix for the backcloth and possibly specials for elements of scenery.

TYPES OF LIGHT

Having chosen where the lighting instruments are to be placed, how do we choose which type to use in each position? Choice is complicated by lighting equipment being so robust that, in addition to the range in today's catalogue, many earlier models are still in use. However, lighting instruments group into families and it is convenient to consider our requirements in terms of what each family offers in terms of beam size, beam shape, and beam quality.

FLOODS

The beam size, shape and quality emitted by a flood is fixed: there are no adjusting knobs. The light is therefore suitable for lighting skys and cloths. It is not selective enough for lighting actors. *Coda* units may be single or grouped in 3s or 4s for colour mixing: they have a reflector which is specially designed to ensure an even wash over a large area from a short throw.

SOFT SPOTS

Prism Convex (PC) spots allow control of the beam size, and the beam may be roughly shaped by a rotatable barndoor. The quality is even and soft-edged, with less light-spill outside the main beam

than in the case of a fresnel. Fresnels have a very soft edge. The beam angle is adjustable and its shape roughly containable by a 4-leaf rotatable barndoor. The extent of the spill outside the main beam makes them unsuitable for longer throws, particularly from the auditorium.

PROFILE SPOTS

Profile spots give precise control of the beam. Shapes in all sizes can be produced by an iris diaphragm (for round edges) and shutters (for hard edges). For more complex shapes, special masks can be cut. Edge quality can be adjusted from very soft to very hard by moving the lens,

while the quality of the whole beam can be textured by a metal pattern plate called a *gobo*. The number in the profile's name indicates the beam angle.
Whereas standard profile spots have a fixed beam angle which is narrowed by shuttering, *variable beam profiles* use a pair of lenses whose differential movement gives a wide range of beam angles and edge qualities. The shutters are then only required for shaping. Adjustments are faster and more efficient use is made of the lamp's output. The number in a variable profile's name indicates the range of available angles.

BEAMLIGHTS

Most lighting instruments produce a conical beam so that the spread widens as the throw increases. Beamlights use a parabolic reflector (and no lens) to produce a near parallel beam which is more intense than a lens spotlight of the same wattage.
One of the most important developments of the past decade. The optics are within the glass envelope of the lamp. Various angles of a squashed near-parallel beam are available. The intensity produces a depth-enhancing haze in the air. So intense that effective with deep colours. The basis of all rock lighting.

DECIDING WHICH LIGHTS TO USE

**D**eciding which instruments to use obviously depends to a large extent on what is available – meaning another exercise in listing priorities. For 'foh' (front of house) throws of any distance in the auditorium, profiles are essential, both to avoid undesirable lighting up of the auditorium from scatter light, and to allow sufficiently precise control of the beam to prevent spillage on to the proscenium. However, in a small hall there is a lot of merit in considering fresnels or PCs (well barndoored) at close range when a lot of spread is possible from a few lamps. For onstage use, fresnels and PCs come into their own with fast-to-set soft edges – profiles are the most versatile instruments but they inevitably take longer to focus. For backlight, fresnels and beamlights are favourite, while floods are to be thought of only for wide expanses of scenery. (Use for actor light only in situations of extreme desperation). For theatre-in-the-round, barndoored fresnels give the required smoothness and spread. Existing installations in most theatres and halls are likely to be based on fresnels and profiles: anyone buying new equipment should look seriously at including a goodly proportion of the new generation PCs giving smooth soft-edge beams without stray scatter light. And at the versatility of the variable beam profiles.

W = Warm   C = Cool   N = Neutral
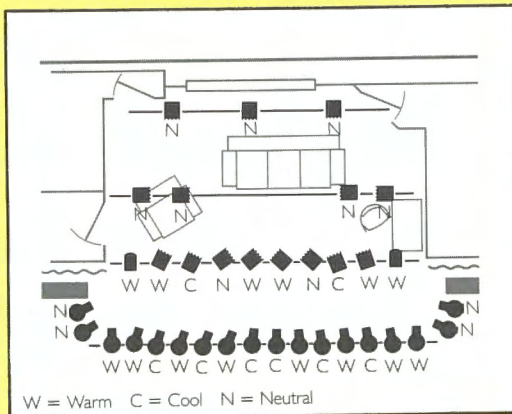
This plan shows instruments being allocated to our play in a very orthodox way: profiles for the front-of-house and fresnels for onstage. If a couple of PCs were available, they would be a useful alternative on the ends of the stage spot bar: this is a position where any scatter light shows up badly on the side walls of the set. Whether 500 or 1000W units are required will depend mainly on length of throw, perhaps with the changeover around 6 to 8 metres. However, it is important always to remember that the actual level of light intensity is not so important as the BALANCE.


W = Warm   C = Cool   N = Neutral
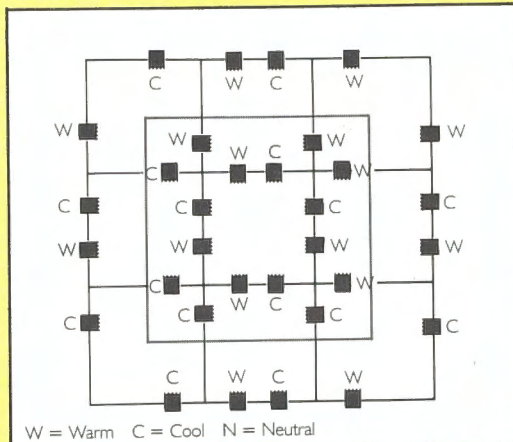
Fresnels have been allocated everywhere because they have a good smooth spread (profile edges can be very difficult in small theatres in the round). Every spot must have a barndoor to contain spill from the audience eyes. Each become a pair of spots since this is the only way that it is possible to light fully to the sides of the acting area. Too many spots? Then perhaps just one cover in a neutral shade (thereby halving the number on the plan) and utilising a couple of pairs of straight downlighters to add colour toning in warm or cool.

B = Blue   R = Red   Y = Yellow   N = Neutral
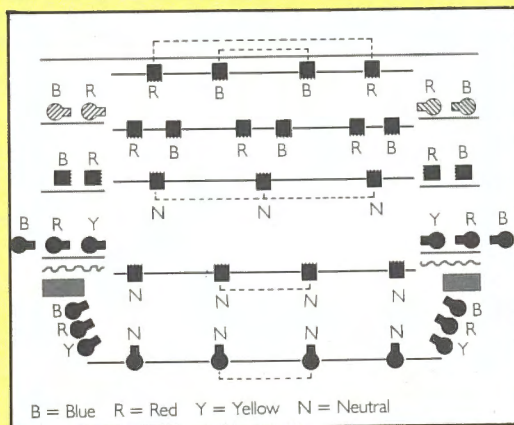
The actor face lights are profiles from the front and fresnels onstage, with the second bar being less powerful units – face light is rarely important upstage in a musical. The backlights are fresnels, although parcans would be nice if available. For the sidelighting, profiles have been used downstage to contain the light in a tight corridor across the front – often advisable when frontcloths or running tabs are in use. Midstage sidelighting is fresnels for a good spread, while the optional upstage sidelight is again profiles to keep the light clear of the skycloth.

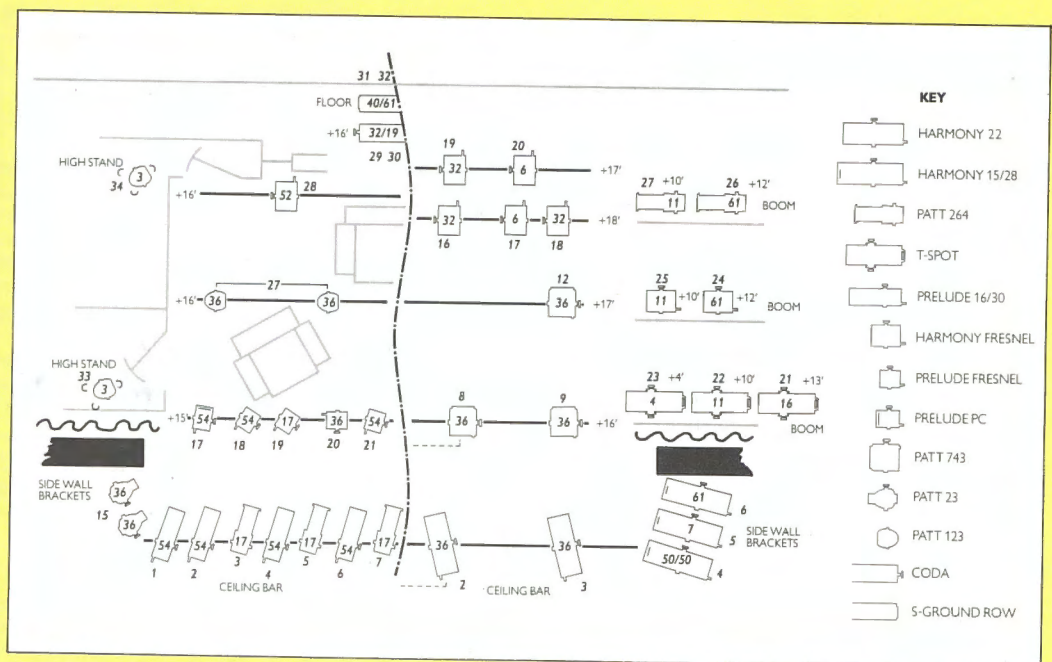# WHICH BEAM ANGLE
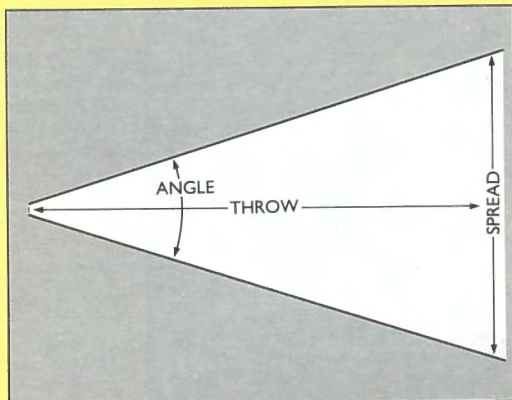
To find the required beam angle, the simplest way is to draw at a suitable scale like ½" or ¼" to the foot (25 or 50 to 1 if you are metricated) the throw and required spread distances, then measure the angle with a protractor.

STAGE LIGHTING
A GUIDE TO LIGHTING THE SMALLER SCALE PRODUCTION

THE RIG PLAN

THE PLAN is the kernel of any lighting design. It shows, at minimum:

● The POSITION of each light.
● The TYPE of light in each position.
● Any ACCESSORIES, such as barndoors or gobo, required by any particular light.
● The DIMMER which will control each light.

KEY

Symbol	Name
	HARMONY 22
	HARMONY 15/28
	PATT 264
	T-SPOT
	PRELUDE 16/30
	HARMONY FRESNEL
	PRELUDE FRESNEL
	PRELUDE PC
	PATT 743
	PATT 23
	PATT 123
	CODA
	S-GROUND ROW

The plan should be drawn to scale (½″ to 1′ or 1:25). This helps accurate indication of light positions. And if scale symbols are used for these lights, there is a check on space problems: if it can be drawn on the plan, there will be room for it on the stage. Any shapes may be used to indicate lights, but plans are more easily read if the symbol resembles the outline shape of the light. Either way, the plan should certainly include a key showing the type of lighting instrument represented by each symbol.

Colour and dimmer are indicated by number: the usual convention is to write the colour number inside the symbol and the dimmer number alongside the symbol.

Lights fixed to horizontal bars are easy to show in plan: the bar can be drawn in the position that it will occupy over the stage and its height indicated by a note (such as +14′) written at the end of the bar. Lights fixed to vertical bars, or stacked on a series of brackets, are more difficult to draw – they must be indicated diagrammatically. Foh lights in the auditorium are usually drawn much closer to the stage than their scaled real distance which would make the plan inconveniently large. The easiest method is to work on tracing paper over a ground plan of the scenery and stage.

A good procedure is:
(1) Establish all lighting positions with **X**s
(2) Convert these **X**s to symbols of available (and/or acquirable) lighting instrument types, drawing them pointing in the approximate direction of proposed light travel.
(3) Write colour numbers inside symbols.
(4) Add dimmer numbers alongside symbols.
(5) Trace through key features of the set and stage – it is usually possible to trace through (in spaces clear of lighting drawing) enough to relate the positions of lights to the geography of the setting and stage.

This will bring the plan to a point where it can be used to prepare and rig the equipment. The lighting designer's own copy will grow many extra markings to indicate precisely where the lights are to be pointed – markings so detailed that they would only confuse if included on all copies of the plan.

LISTS

From the plan, lists are prepared of the required number of:

TYPES OF LIGHT
LENGTHS OF CABLE
### ACCESSORIES
COLOUR FILTERS

SECTION DRAWINGS
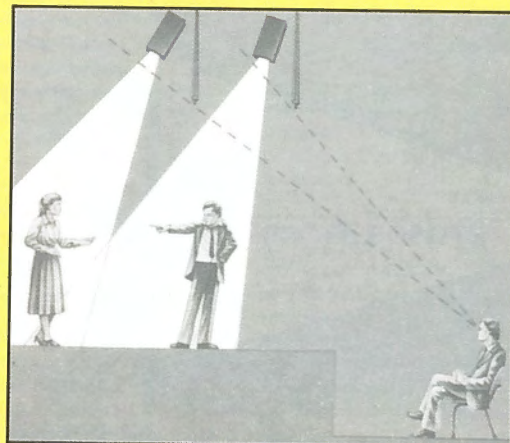
Will there be borders to mask the lights (and other things) hanging above the stage? If so, draw a section to check that all the light beams will be able to reach all desired parts of the actors and the scenery. Usually (but not always) the heights of the borders and lighting bars can be adjusted. Only a section will determine what these relative heights should be, and only a section will determine how effective the masking arrangements will be for an audience eye in the front row.

FOR SERVICE REPAIRS CONTACT EXT. 521

FOCUSING

Focusing is probably the most important part of the whole lighting operation. Not even the most sophisticated marvel of a microprocessor control desk can fill in that dark spot where the lights have not been properly overlapped. Nor can a hard edge be softened or a disturbing spill on to a border be shuttered off. Focusing involves tricky ladder work so that there is every incentive to get it right first time – although, inevitably, it will be necessary to get at the odd spotlight between rehearsals for a little fine adjustment.
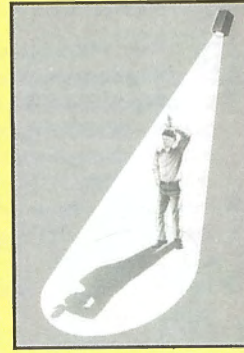
FOCUSING IN COMFORT

If you stand with your back to the light that you are focusing, (1) You will avoid being blinded (2) You will be able to see what the actor's light is doing to the scenery.
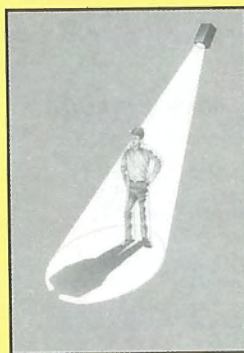
No clear shadow of head, therefore head is *not lit*.
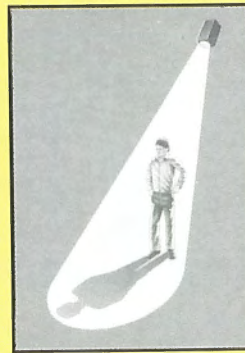
Clear shadow of head, therefore head *is lit*.

If the lighting designer is shorter than the actor, make an allowance – check by raising hand.

WHAT CAN WE ADJUST?

ON ALL LIGHTS
Left/Right & Up/Down

ON SOFT SPOTS
Bigger/Smaller
+ with optional Barndoor
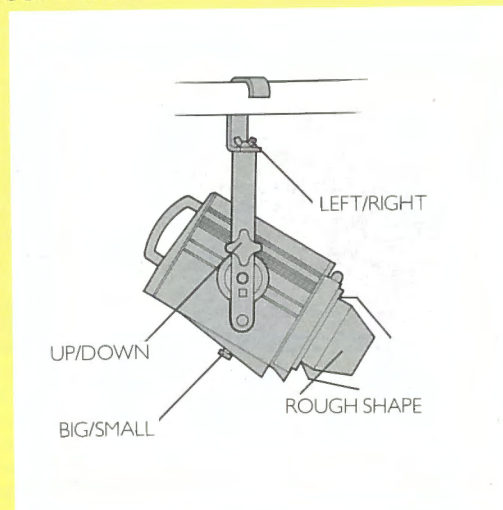Rough shaping (& control of spill)

ON PROFILE SPOTS
Round size by optional Iris
Shaped size by Shutters
Texture by optional Gobo
Beam edge quality by Lens
+ on Variable Beam Profile Spots
Size and edge quality by differential movement of two Lenses
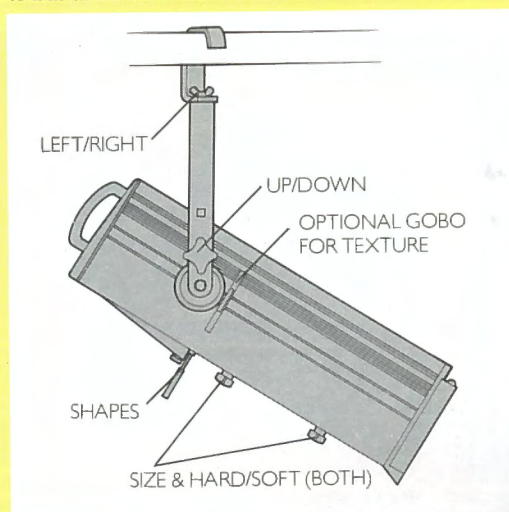Shape by Shutters

The most difficult types of light are the basic Profile Spots since there is an interaction between shutters (or iris) and lens movement. Although adjusting the lens is principally a means of making the edge of the beam harder or softer, it will also change the size. Therefore it is usually necessary to adjust shutters and lens alternately to get the desired combination of size and edge quality.

Most profiles have an adjustment whereby the light can be adjusted so that it is either smooth across the whole spread of the beam, or 'peaked' to be brighter in the middle with the amount of light falling off towards the edge. For most purposes it is easier to light with an even brightness across the beam and so it is recommended that anyone beginning to work with light should use an even beam until through experience they discover a need for a 'peaky' beam.

SOFT SPOT

LEFT/RIGHT

UP/DOWN

ROUGH SHAPE

BIG/SMALL

VARIABLE ANGLE PROFILE SPOT

LEFT/RIGHT

UP/DOWN

OPTIONAL GOBO FOR TEXTURE

SHAPES

SIZE & HARD/SOFT (BOTH)

FIXED ANGLE PROFILE SPOT

LEFT/RIGHT

UP/DOWN

SHAPED SIZES

OPTIONAL IRIS FOR ROUND SIZES
OR
OPTIONAL GOBO FOR TEXTURE

HARD/SOFT
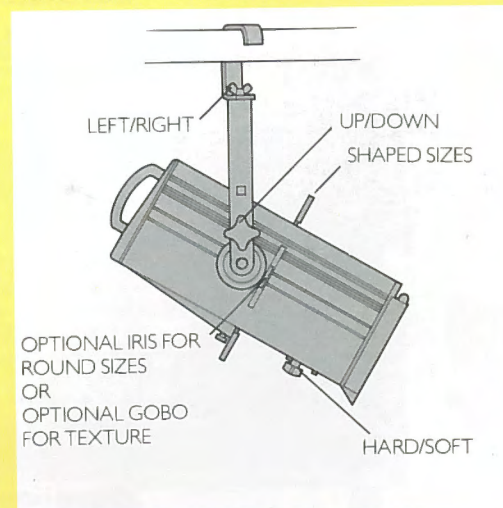
THE CONTROL BOARD

B y means of the 'board', the lighting designer can control:
- the **composition** of the stage picture – by selecting the appropriate combinations of individual lights.
- the **balance** of this picture – by selecting the level of brightness of each of these lights.
- the **fluidity** by which one picture is replaced by another.

What was once called a switchboard, or more properly a dimmerboard, is now formally called a Lighting Control. Which is fine so long as we take care to remember that our 'Lighting Control' only controls which lights we use and how bright they are. 'Lighting Controls' do not control where we put the lights, which lights we put there and where we point them. Most of us however still talk about our lighting control as 'the board' whether we use our knees, our fingers or a microprocessor to work it.

DIMMING AND DISTRIBUTION

Modern boards are two-part:
- the **desks** whose controls we push, slide or turn to produce the desired changes in the intensity of the lights
  and
- the **dimmers** which interpret the instructions from the controls so that the appropriate amount of electricity is passed to each light.

Fortunately the connection between desk and dimmers is slender cabling; from a maximum of one 8-core cable for each group of six dimmers in portable manual systems to a minimum of the single twin-core screened cable that can transmit all the required data between a memory system and its dimmers. This allows the desk to be positioned wherever it is convenient for the operator to have a good view of the stage. The dimmers can then be placed in their most convenient position to distribute 'controlled' electricity from the mains supply to the individual lights. This is normally a backstage position which is within the manufacturer's recommended extremes of temperature and:
- adjacent to a suitable mains supply switch-fuse.
- clear of actor and scenery movements.
- accessible for fuse changes.

For permanent installations of any size, the dimmers are normally mounted in racks with permanent wiring to numbered sockets suitably located around the stage and auditorium. For temporary installations (and some of the smaller fixed·ones) portable dimmer packs are used, each pack having six dimmers with a pair of output sockets to each dimmer. Temporary cables can then be run from those socket outlets to the lights. It is essential that such an arrangement is kept tidy, with plugs clearly labelled and tape used to harness together cables which are proceeding in the same direction. Even the smallest stage lighting installation uses what is, by domestic standards, a lot of electricity. The function of dimmers (secondary to their artistic function) as a power distribution system must not be underestimated. Safety and efficiency go hand-in-hand.
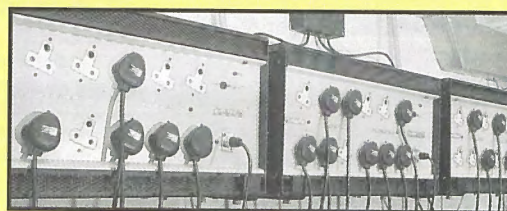

Tempus Dimmer Rack
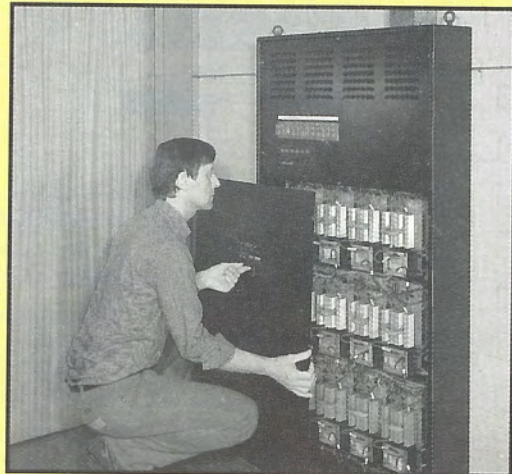
Permus Dimmer Rack

PRESETTING

The operation of today's boards is based on presetting. The intensity levels of the lights which compose the next picture are preset in preparation for the change. On manual systems the levels are filed as written numbers on a paper plot from which the individual dimmer levers can be set by hand at each performance. On memory systems, the data is filed in an electronic store from which it can be recalled instantly by fingering a simple control. On Cue, the change is effected by operating masters which replace the existing lighting state with the new one. Operation of these masters is so simple that the board operator can devote total attention to the timing of the change.

MANUAL PRESETTING

While manual presetting boards offer facilities undreamed of in the not-so-far-distant days of simple directly-operated resistance dimmers, their operation still requires a lot of work that is both time-consuming and error-prone. Although presetting allows cues to be performed smoothly and with accurate sensitive timing, the individual dimmer levels for each cue must still be written down at rehearsal – and re-set from the written plot for each cue at each performance. However, the rapid development of micro-processing techniques is bringing instant electronic memorising of plots within the financial resources of smaller and smaller installations. In particular, the M24 extension of the Tempus range means that memory is no longer just a dream for many of those who light the amateur stage. This is not the place to go into the details of operation. Suffice it to say that once a cue state has been established by a rapid selection and balancing of lights via a keyboard of familiar pocket calculator format (or by standard preset levers if you prefer), the levels can be instantly filed . . . and just as instantly recalled . . . and just as instantly adjusted if necessary. The time-wasting drudgery is removed but that essence of any live performance, the timing of a cue's progress, is completely under the operator's control.
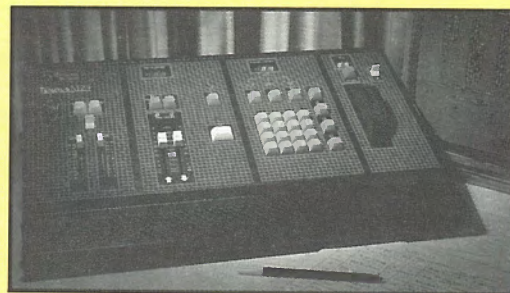
M24 Control Desk

MEMORY SYSTEM SERVICING SECOND TO NONE

STRAND THEATRE LIGHTING

The most comprehensive range of luminaires available for the professional and amateur stage.

Throughout the world of entertainment, Strand is the first name for excellence in stage lighting equipment, offering the largest range available. It extends from compact and economical lights perfect for small budget productions, amateur and touring companies, and community centres, to high performance luminaires of many types for versatile lighting and effects in the largest theatres and opera houses.

Every product incorporates Strand's unique knowledge of stage lighting requirements and extensive manufacturing expertise in this field.
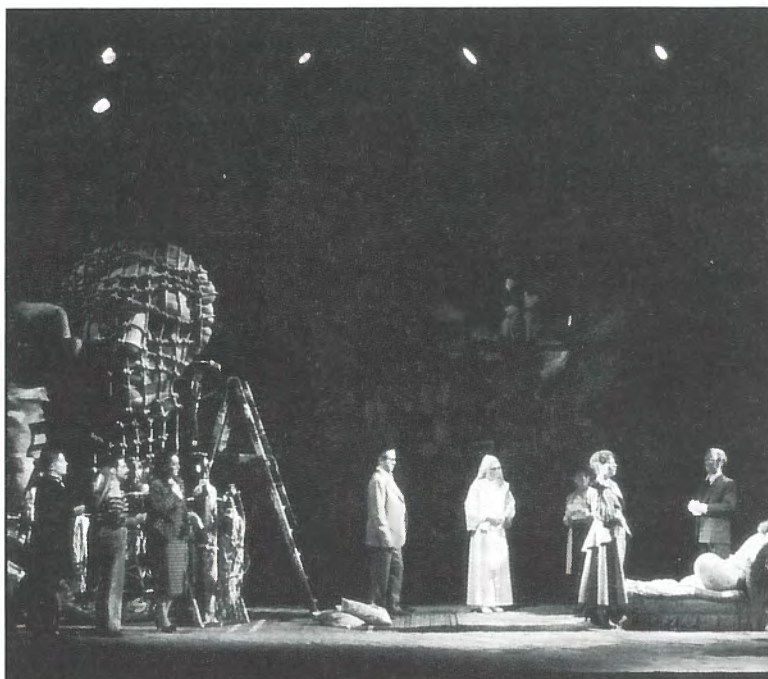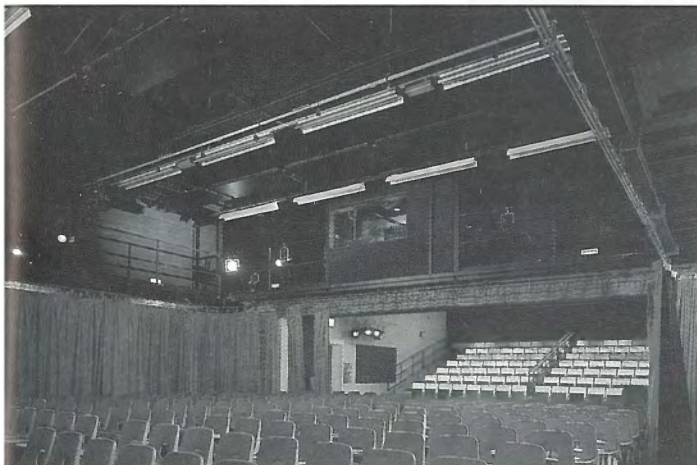

The scene of Giulietta's studio in Venice during 'Aspects of Love' at the Prince of Wales Theatre, London W1. There are 40 scene changes throughout the show. The lighting effects are made possible by using Strand's Precision Automated Lighting System.

Brimsham Green School, Yate, Wiltshire. Stage Lighting, manual lighting control and dimmer packs, and retractable seating by Strand.
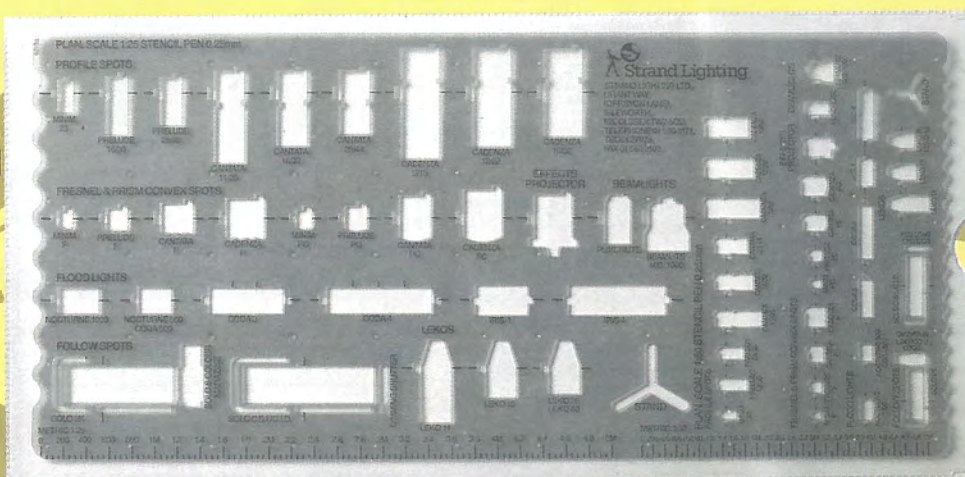

The Royal Shakespeare Company's Swan Theatre at Stratford upon Avon is Strand equipped from the luminaires to the dimmers and the Galaxy Memory Lighting System.
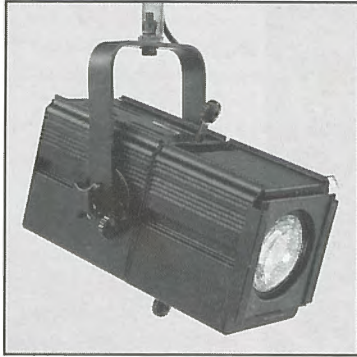
STAGE LUMINAIRE STENCIL

This useful aid to drawing rig plans comes in scales of 1:25 and 1:50. It is made of flexible plastic and is complete with a PVC storage pocket. **88 361 01**

MINIM 500/300W SPOTLIGHTS

Minim spotlights make possible professional lighting standards at economic cost for community centres, amateur and school societies and wherever budgets are limited. Using these compact and efficient units, practical and creative lighting can readily be planned to suit all types of productions and presentations.

MINIM 23
500/300W PROFILE

22 310 0T 3.85kg

With all four shutters withdrawn, it projects a 28° circular beam, or even wider with supplementary lens. The beam is adjusted by a recessed knob that moves the internal lens.

Supplied with 500W, 240V RSE/18 lamp (220V may be specified), heat resisting fibre colour frame and 1.5 metres of fitted power cable (open ends).

Scale 1:15

245mm

165mm — 310mm
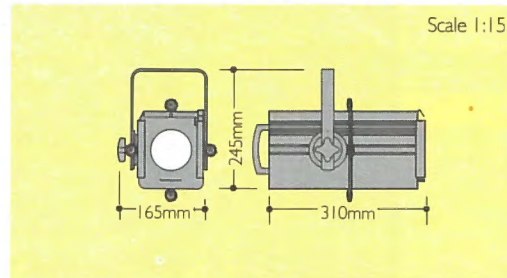
Minim 23
Performance guide based on RSE/18 500W lamp

4m		6m		8m		10m	
Lux	Ø	Lux	Ø	Lux	Ø	Lux	Ø
1450	2.0	650	3.0	375	4.0	250	5.0

Ø = Diameter
For full photometric information refer to data sheet.

MINIM F
500/300W FRESNEL

22 300 10 2.25kg

The soft-edged circular beam is adjustable from spot at 12.5° to 55° at flood.

Minim Fresnel spotlights are supplied carton packed in pairs. Each carton contains 2 spotlights, each with 500W, 240V RSE/18 lamp (220V may be specified), heat resisting fibre colour frame and 1.5 metres of fitted power cable (open ends).

Scale 1:15

200mm

165mm — 175mm

Minim F
Performance guide based on RSE/18 500W lamp

	4m		6m		8m		10m	
	Lux	Ø	Lux	Ø	Lux	Ø	Lux	Ø
N	1575	0.88	700	1.32	400	1.76	250	2.20
W	375	4.16	175	6.24	100	8.32	75	10.40

N = Narrowest W = Widest Ø = Diameter
For full photometric information refer to data sheet.

MINIM PC
500/300W PRISM CONVEX

22 315 07 2.25kg

Provides a circular beam with a tight, diffused edge, variable from an intense pin-spot at 7° to a wide angle flood at 47°.

Minim Prism Convex spotlights are supplied carton packed in pairs. Each carton contains 2 spotlights, each with 500W, 240V RSE/18 lamp (220V may be specified), heat resisting fibre colour frame and 1.5 metres of fitted power cable (open ends).

Scale 1:15

200mm

165mm — 175mm
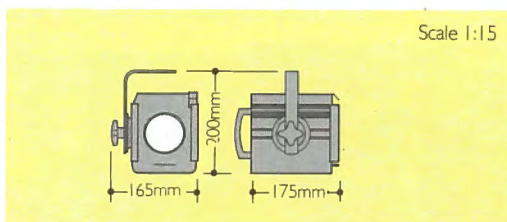
Minim PC
Performance guide based on RSE/18 500W lamp

	4m		6m		8m		10m	
	Lux	Ø	Lux	Ø	Lux	Ø	Lux	Ø
N	2950	0.49	1325	0.73	750	0.98	475	1.22
W	375	3.5	175	5.25	100	7.0	75	8.75

N = Narrowest W = Widest Ø = Diameter
For full photometric information refer to data sheet.

Accessories for Minim Spotlights

38° Wide angle lens in mount extends beam spread to 38° (for Minim 23) **27 800 4T**

Iris diaphragm, 12 leaf (for Minim 23) **23 363 17**

Four-door rotatable barndoor with safety spring, and 125mm² heat resisting fibre colour frame (for Minim F & PC) **23 200 04**

Additional 125mm² heat resisting fibre colour frame **27 806 0T**

⅝" (16mm) female, stand mounting socket **26 865 01**

Universal mounting bracket for both wall and ceiling mounting **26 866 07**
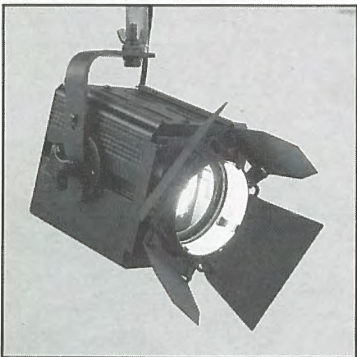
Hook clamp **26 483 07**

Safety chain **26 064 18**

Lamps

RSE/18 500W
240V lamp **34 218 12**
220V lamp **34 218 20**

Note: For details of other lamps which may be used in Minim spotlights, refer to Section 6.
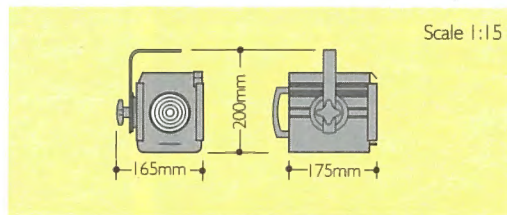
PRELUDE 650/500W SPOTLIGHTS

Providing the beam qualities required in small to medium size theatres, this integrated range of spotlights is a popular choice with lighting designers. The profiles are supplied complete with four beam shaping shutters, and have provision for an iris diaphragm. Construction is rigid and strong.

PRELUDE 16/30 650/500W PROFILE

22 402 08 6.5kg

A very useful range of beam angles, 16° to 32° giving either variable spread over a fixed throw or a fixed spread over variable throws.

Supplied with 650W, 240V RSE/26 lamp (220V may be specified), colour frame and 1.5 metres of detachable power cable fitted with 15 amp plug. (European Schuko or open end alternatives may be specified)

Scale 1:15

340 or 270mm

230mm · 525mm

Prelude 16/30 Performance guide based on RSE/26 650W lamp, set at peaky field

	4m		8m		12m		16m	
	Lux	Ø	Lux	Ø	Lux	Ø	Lux	Ø
N	3375	1.12	850	2.24	375	3.36	225	4.48
W	1675	2.3	425	4.6	200	6.9	125	9.2

N = Narrowest   W = Widest   Ø = Diameter
For full photometric information refer to data sheet.

PRELUDE 28/40 650/500W PROFILE
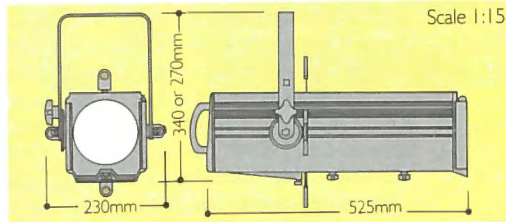
22 405 04 6.3kg

Versatile medium to wide angle variable spot with beam angles from 28° to 40°.

Supplied with 650W, 240V RSE/26 lamp (220V may be specified), colour frame and 1.5 metres of detachable power cable fitted with 15 amp plug. (European Schuko or open end alternatives may be specified)

Scale 1:15

340 or 270mm

230mm · 435mm
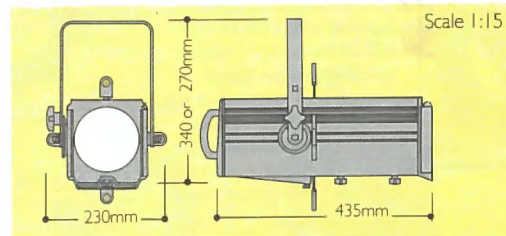
Prelude 28/40 Performance guide based on RSE/26 650W lamp, set at peaky field

	4m		8m		12m		16m	
	Lux	Ø	Lux	Ø	Lux	Ø	Lux	Ø
N	2300	2.0	575	4.0	275	6.0	150	8.0
W	1600	2.9	400	5.8	200	8.7	100	11.6

PRELUDE F 650/500W FRESNEL

22 500 01 3.5kg

For a circular soft-edged beam variable from a tight spot of 9° to a medium angle flood of 40°.

Supplied with 650W, 240V RSE/26 lamp (220V may be specified), colour frame and 1.5 metres of detachable power cable fitted with 15 amp plug. (European Schuko or open end alternatives may be specified)

Scale 1:15

270mm

230mm · 225mm
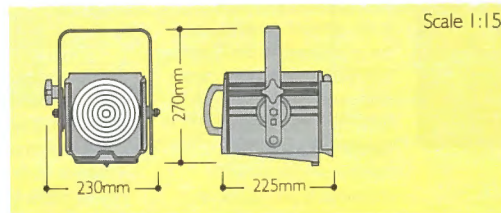
Prelude F Performance guide based on RSE/26 650W lamp

	4m		8m		12m		16m	
	Lux	Ø	Lux	Ø	Lux	Ø	Lux	Ø
N	3500	0.63	875	1.26	400	1.89	225	2.52
W	750	2.9	200	5.8	100	8.7	50	11.6

N = Narrowest   W = Widest   Ø = Diameter
For full photometric information refer to data sheet.

PRELUDE PC 650/500W PRISM CONVEX

22 502 02 3.6kg

Bridges the different edge qualities of the Fresnel and Profile spots, and provides a variable-spread beam of 7.5° to 55° with diffused edges.

Supplied with 650W, 240V RSE/26 lamp (220V may be specified), colour frame and 1.5 metres of detachable power cable fitted with 15 amp plug. (European Schuko or open end alternatives may be specified)

Scale 1:15

270mm

230mm · 235mm

Prelude PC Performance guide based on RSE/26 650W lamp

	4m		8m		12m		16m	
	Lux	Ø	Lux	Ø	Lux	Ø	Lux	Ø
N	3425	0.52	875	1.04	400	1.56	225	2.08
W	450	4.16	125	8.32	50	12.48	—	—

N = Narrowest   W = Widest   Ø = Diameter
For full photometric information refer to data sheet.

Accessories for Prelude Spotlights

25mm mesh wire lens guard
27 228 08

Four-door rotatable barndoor (for F & PC)
23 201 0T

Iris Diaphragm, 18 leaf (for Profiles)
23 502 08

Pattern (gobo) holder (for Profiles)
23 865 02

Additional 150mm² colour frame
27 260 03

Hook clamp   **26 483 07**

Safety chain   **26 064 18**

Lamps

RSE/26 650W
240V lamp   **34 231 00**
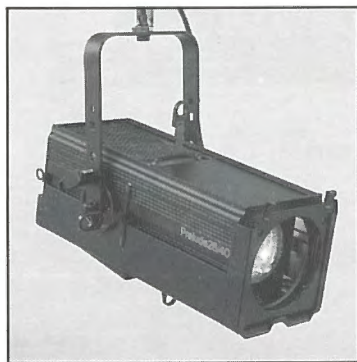220V lamp   **34 231 19**

Note: For details of alternative lamps which may be used in Prelude spotlights, refer to Section 6.

Alternative Power Cables

1.5 metre spotlight power cable fitted with UK 15 amp 3 pin plug   **35 002 22**

1.5 metre spotlight power cable fitted with European Schuko plug   **35 002 21**

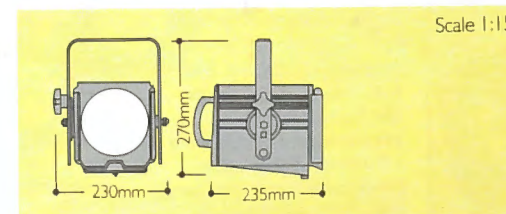1.5 metre spotlight power cable with bare ends.
35 002 20

STAGE LIGHTING
SPOTLIGHTS

CANTATA 1200W SPOTLIGHTS

Cantata is the first range of luminaires to be designed for the new 1200W RSE/29 tungsten halogen lamp. By incorporating a larger diameter lens and a specially designed reflector, up to 50% increase in usable light has been achieved over previous 1000W profile spots.

This performance has been matched with improved operational features including a fully rotatable gate assembly through 360°, detachable lens tubes, simple to use peaky/flat field beam adjustment and an improved tilt clamp arrangement. A two-position lamp base permits use of either the new 1200W lamp or the conventional 1000W lamp. The range comprises three variable spread spotlights with overlapping beam angle ranges between 11° and 44°, a fresnel and a prism convex spotlights.

Interchangeable Lens Tubes
For operational flexibility, the Profile versions of the Cantata feature interchangeable lens tubes to a common lamp housing.

Cantata Profile lamp housing with lamp and power cable (excluding suspension fork) **22 600 00**

11/26 Profile lens tube (complete with fork and filter holder) **22 600 26**

18/32 Profile lens tube (complete with fork and filter holder) **22 600 32**

26/44 Profile lens tube (complete with fork and filter holder) **22 600 44**

CANTATA 11/26 1200W PROFILE

22 611 26 12.8kg

A narrow to medium angle variable spread spotlight, with a beam spread of 11° to 26°.

Supplied with 1200W, 240V RSE/29 lamp (220V may be specified), colour frame, integral wire mesh guard and 1.5 metres of detachable power cable fitted with 15amp plug. (European Schuko or open end alternatives may be specified)

Scale 1:15

420mm — 300mm — 820mm
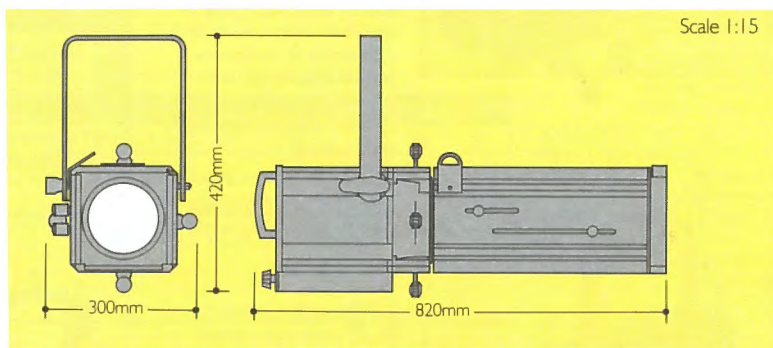
Cantata 11/26
Performance guide based on RSE/29 1200W lamp, set at peaky field

	5m		10m		15m		20m	
	Lux	Ø	Lux	Ø	Lux	Ø	Lux	Ø
N	10200	0.95	2550	1.9	1150	2.85	650	3.8
W	5175	2.3	1300	4.6	575	6.9	325	9.2

N = Narrowest   W = Widest   Ø = Diameter
For full photometric information refer to data sheet.

CANTATA FOLLOWSPOT 1200W

22 511 26 13.5kg

A valuable addition to the immensely successful Cantata range. This followspot is ideally suited for use in clubs, schools, small theatres, etc. It is based on the Cantata 11/26 and comes complete with black-out iris, 29mm spigot for stand mounting, specially adapted tilt-mechanism for smooth movement, and sights; in addition to all the other normal Cantata features. A new 4-colour magazine is available as an accessory.

Supplied with 1200W 240V RSE/29 lamp (220V may be specified), colour frame, integral wire mesh guard, and 3 metres of detachable power cable fitted with in-line switch and 15 amp plug (European Schuko or open-ended alternatives may be specified).

Accessory for Cantata Followspot
4-colour magazine
23 879 40

CANTATA 18/32 1200W PROFILE

22 618 32 12.0kg

This unit offers a spread of medium range beam options between 18° and 32°.

Supplied with 1200W, 240V RSE/29 lamp (220V may be specified), colour frame, integral wire mesh guard and 1.5 metres of detachable power cable fitted with 15amp plug. (European Schuko or open end alternatives may be specified)

Scale 1:15

420mm — 300mm — 675mm
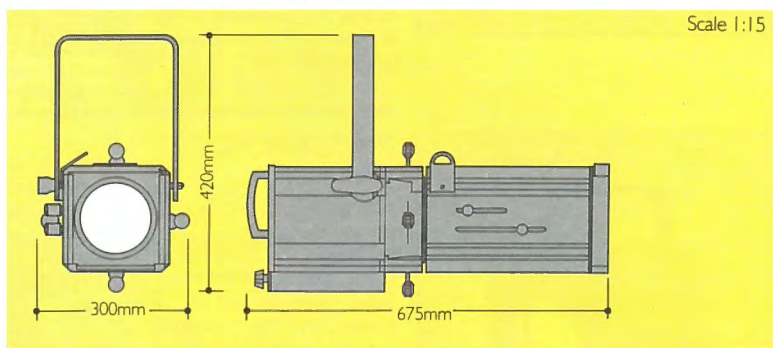
Cantata 18/32
Performance guide based on RSE/29 1200W lamp, set at peaky field

	5m		10m		15m		20m	
	Lux	Ø	Lux	Ø	Lux	Ø	Lux	Ø
N	7050	1.55	1775	3.1	800	4.65	450	6.2
W	3500	2.8	875	5.7	400	8.6	225	11.4

N = Narrowest   W = Widest   Ø = Diameter
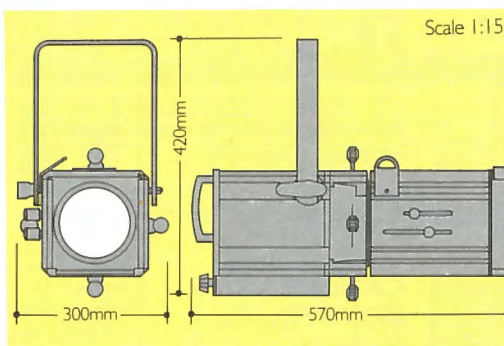For full photometric information refer to data sheet.

CANTATA 26/44
1200W PROFILE

`22 626 44` 11kg

Beam options from 26° to a wide 44° are provided by this medium to wide angle profile spot.

Supplied with 1200W, 240V RSE/29 lamp (220V may be specified), colour frame, integral wire mesh guard and 1.5 metres of detachable power cable fitted with 15amp plug. (European Schuko or open end alternatives may be specified)
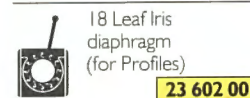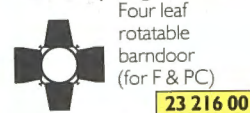
Scale 1:15

420mm
300mm — 570mm

Cantata 26/44
Performance guide based on RSE/29 1200W lamp, set at peaky field

	5m		10m		15m		20m	
	Lux	Ø	Lux	Ø	Lux	Ø	Lux	Ø
N	4275	2.3	1075	4.6	475	6.9	275	9.2
W	2275	4.0	575	8.0	275	12.1	150	11.4

N = Narrowest W = Widest Ø = Diameter
For full photometric information refer to data sheet.

Accessories for Cantata Spotlights

Four leaf rotatable barndoor (for F & PC) `23 216 00`

18 Leaf Iris diaphragm (for Profiles) `23 602 00`

Pattern/gobo holder (for Profiles) `23 866 00`

Additional 185mm² Colour Frame `27 262 04`

Hook clamp `26 483 07`

Safety chain `26 064 18`

Lamps
RSE 29/1200W
240V lamp `34 221 22`
220V lamp `34 221 21`

Note: RSE/19 and RSE/70, 1000W lamps are also approved for use in Cantata.
Note: For details of these and other alternative lamps, refer to Section 6.

Alternative Power Cables
1.5 metre spotlight power cable fitted with UK 15 amp 3 pin plug `35 002 22`

1.5 metre spotlight power cable fitted with European Schuko plug `35 002 21`

1.5 metre spotlight power cable with bare ends `35 002 20`

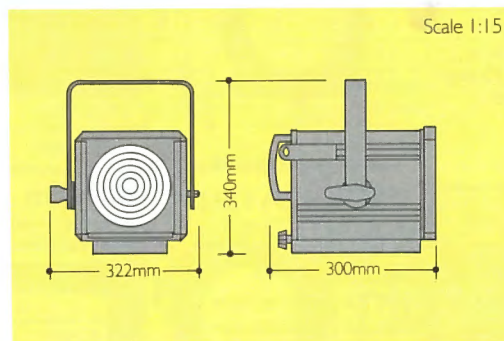## CANTATA F
1200W FRESNEL

`22 628 00` 5.8kg

This compact spotlight has a soft edge beam variable from a tight spot of 7.5° to a wide angle flood of 50°.

Supplied with 1200W, 240V RSE/29 lamp (220V may be specified), colour frame, integral wire mesh guard and 1.5 metres of detachable power cable fitted with 15amp plug. (European Schuko or open end alternatives may be specified)

Scale 1:15

340mm
322mm — 300mm

Cantata F
Performance guide based on RSE/29 1200W lamp

	5m		10m		15m		20m	
	Lux	Ø	Lux	Ø	Lux	Ø	Lux	Ø
N	4950	0.6	1250	1.3	550	2.0	325	2.6
W	775	4.6	200	9.3	850	14.0	50	18.6

N = Narrowest W = Widest Ø = Diameter
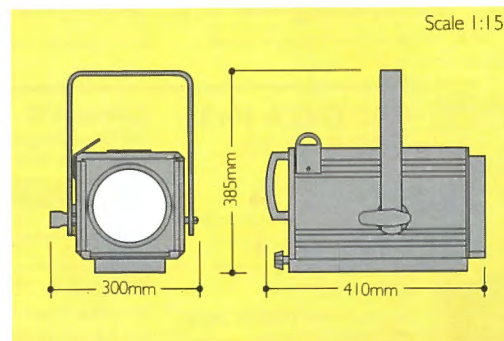For full photometric information refer to data sheet.

CANTATA PC
1200W PRISM CONVEX

`22 628 02` 7.2kg

Providing tighter lighting than the fresnel, the PC's diffused beam is variable from a narrow 4.2° spot to a wide angle flood of 49°.

Supplied with 1200W, 240V RSE/29 lamp (220V may be specified), colour frame, integral wire mesh guard and 1.5 metres of detachable power cable fitted with 15amp plug. (European Schuko or open end alternatives may be specified)

Scale 1:15

385mm
300mm — 410mm

Cantata PC
Performance guide based on RSE/29 1200W lamp

	5m		10m		15m		20m	
	Lux	Ø	Lux	Ø	Lux	Ø	Lux	Ø
N	8250	0.35	2075	0.7	925	1.05	525	1.4
W	575	4.6	150	9.2	75	13.8	50	18.4

N = Narrowest W = Widest Ø = Diameter
For full photometric information refer to data sheet.

Strand Lighting **37**

CADENZA 2000W SPOTLIGHTS

These powerful 2000W luminaires provide high intensity lighting with the accurate control and flexibility necessary for large-scale theatre productions. They combine outstanding optical performance with robust mechanical construction, ease of operation and maximum safety.

Supplied with 2000W, 240V RSE/79 lamp (220V may be specified), colour frame, integral wire mesh lens guard, integral 18-leaf Iris diaphragm and 1.5 metres of detachable power cable fitted with 15 amp plug. (European Schuko or open end alternatives may be specified).

CADENZA 9/15 2000W PROFILE

`22 421 00` 24.0kg

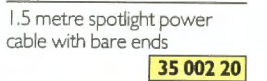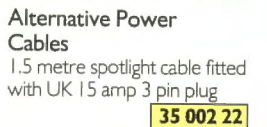**V**ariable narrow angle spot, 9° to 15°, with plenty of punch for really long throws.

Cadenza 9/15
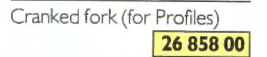Performance guide based on RSE/79 2000W lamp, set at peaky field

	8m		16m		24m		32m	
	Lux	Ø	Lux	Ø	Lux	Ø	Lux	Ø
N	8850	1.26	2225	2.52	1000	3.78	575	5.04
W	3875	2.1	975	4.2	450	6.3	250	8.4

N = Narrowest   W = Widest   Ø = Diameter
For full photometric information refer to data sheet.

Scale 1:15
485mm
370mm
985mm
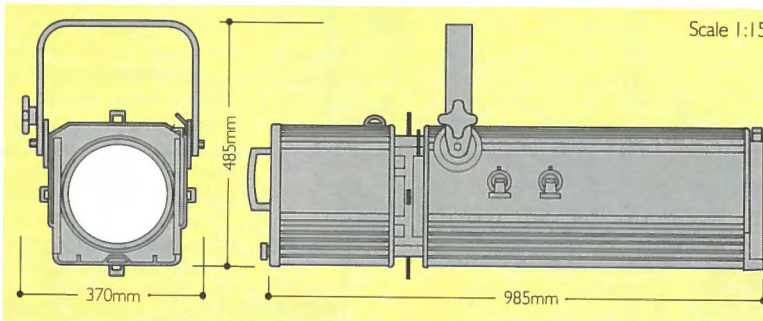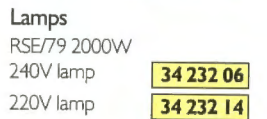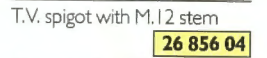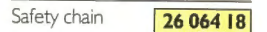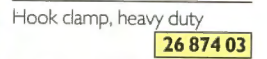
CADENZA 12/22 2000W PROFILE

`22 420 01` 22.8kg

Narrow to medium angle variable spread spot 12° to 22°. Ideal for long throws from the auditorium lighting bridge.

Cadenza 12/22
Performance guide based on RSE/79 2000W lamp, set at peaky field

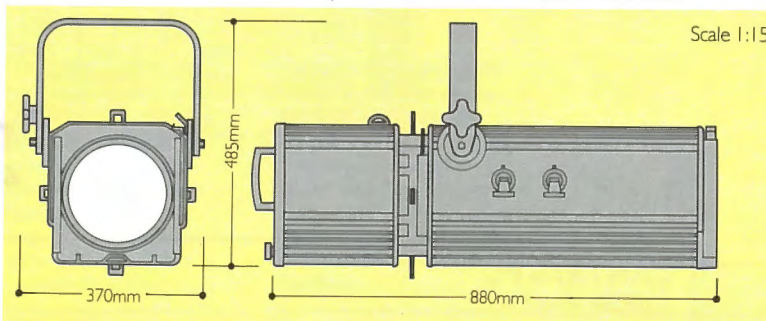|	8m		16m		24m		32m	
	Lux	Ø	Lux	Ø	Lux	Ø	Lux	Ø
N	6750	1.7	1675	3.4	750	5.1	425	6.8
W	2825	3.1	725	6.2	325	9.3	175	12.4

N = Narrowest   W = Widest   Ø = Diameter
For full photometric information refer to data sheet.

Scale 1:15
485mm
370mm
880mm

Supplied with 2000W, 240V RSE/79 lamp (220V may be specified), colour frame, integral wire mesh lens guard, integral 18-leaf Iris diaphragm and 1.5 metres of detachable power cable fitted with 15 amp plug. (European Schuko or open end alternatives may be specified).

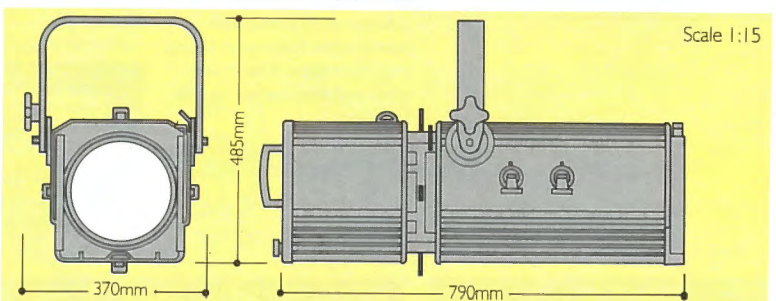### CADENZA 19/32 2000W PROFILE

`22 424 03` 22.2kg

Medium to wide angle variable spot 19° to 32°, useful for many stage lighting jobs.

Supplied with 2000W, 240V RSE/79 lamp (220V may be specified), colour frame, integral wire mesh lens guard and 1.5 metres of detachable power cable fitted with 15amp plug. (European Schuko or open end alternatives may be specified).

Cadenza 19/32
Performance guide based on RSE/79 2000W lamp, set at peaky field

	8m		16m		24m		32m	
	Lux	Ø	Lux	Ø	Lux	Ø	Lux	Ø
N	3375	2.7	850	5.4	375	8.1	225	10.8
W	1250	4.6	325	9.2	150	13.8	100	18.4

N = Narrowest   W = Widest   Ø = Diameter
For full photometric information refer to data sheet.

Scale 1:15
485mm
370mm
790mm

Accessories for Cadenza Spotlights

Four-door rotatable barndoor (for F & PC)
`23 210 01`

Pattern (gobo) holder (for Profiles)
`23 864 07`

Additional 245mm² colour frame
`27 264 05`

Hook clamp, heavy duty
`26 874 03`

Safety chain
`26 064 18`

T.V. spigot with M.12 stem
`26 856 04`

Cranked fork (for Profiles)
`26 858 00`

Lamps
RSE/79 2000W
240V lamp `34 232 06`
220V lamp `34 232 14`

Alternative Power Cables
1.5 metre spotlight cable fitted with UK 15 amp 3 pin plug
`35 002 22`

1.5 metre spotlight power cable fitted with European Schuko plug `35 002 21`

1.5 metre spotlight power cable with bare ends
`35 002 20`

Note: For detailed information on lamps refer to Section 6.

CADENZA F
2000W FRESNEL

22 522 07 | 12.2kg

A powerful spot with soft, indeterminate edges and a wide range of beam angles 7° to 62°.
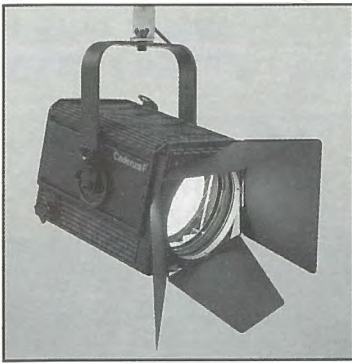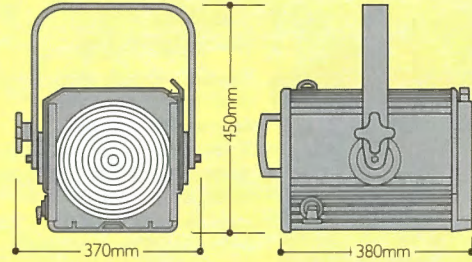
Supplied with 2000W, 240V RSE/79 lamp (220V may be specified), colour frame, integral wire mesh lens guard and 1.5 metres of detachable power cable fitted with 15amp plug. (European Schuko or open end alternatives may be specified).

Cadenza F
Performance guide based on RSE/79 2000W lamp

	8m		16m		24m		32m	
	Lux	Ø	Lux	Ø	Lux	Ø	Lux	Ø
N	5475	1.0	1375	2.0	625	3.0	350	4.0
W	450	9.6	125	19.2	50	28.8	25	38.4

N = Narrowest   W = Widest   Ø = Diameter
For full photometric information refer to data sheet.

Scale 1:15

CADENZA PC
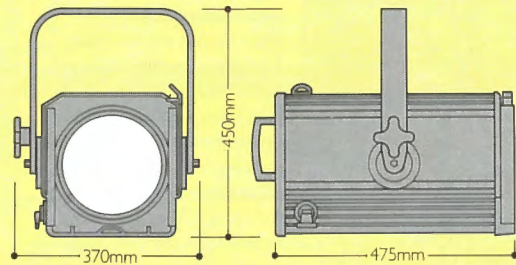### 2000W
PRISM CONVEX

22 524 08 | 15.2kg

D iffused edge widely-variable beam 4° to 61°, for tighter lighting than the fresnel.

Supplied with 2000W, 240V RSE/79 lamp (220V may be specified), colour frame, integral wire mesh lens guard and 1.5 metres of detachable power cable fitted with 15amp plug. (European Schuko or open end alternatives may be specified).

Cadenza PC
Performance guide based on RSE/79 2000W lamp

	8m		16m		24m		32m	
	Lux	Ø	Lux	Ø	Lux	Ø	Lux	Ø
N	8925	0.6	2250	1.2	1000	1.8	575	2.4
W	375	9.4	100	18.8	50	28.2	25	37.6

N = Narrowest   W = Widest   Ø = Diameter
For full photometric information refer to data sheet.

Scale 1:15

CADENZA EP
2000W EFFECTS
PROJECTOR

22 524 10 | 14.5kg

T he Cadenza Effects Projector provides the lighting designer with the means of projecting stationary or moving effects onto the acting area or backing of his/her choice, with the flexibility to project standard effects or custom made slides.

Supplied with 2000W, 240V RSE/79 lamp (220V may be specified), 150mm diameter 3-lens condenser system and glass heat filter, and 1.5 metres of detachable power cable fitted with 15amp plug. (European Schuko or open end alternatives may be specified).

Note: The majority of projected moving effects require an effects spot, a moving effects attachment, and an objective lens. Scene projection requires a slide carrier and a turntable front instead of an effects attachment.

Accessories for Cadenza EP

Turntable front only for slide carrier **24 154 04**

Metal slide carrier for two 3¼ x 4" or 3¼" square slides **24 156 05**

Objective Lenses

Commercial quality, slide focusing and with backplate.
6.5cm (2½") focal length **24 151 08**

10cm (4") focal length **24 153 09**

15cm (6") focal length **24 155 0T**

Adjustable metal mask **24 343 00**

Beam divertor mirror for above **24 346 07**

Moving Effects Attachment
Disc Type
475mm diameter case
220/240V AC motor drive

Thunder clouds	**24 653 01**
Fleecy Clouds	**24 134 0T**
Storm Clouds	**24 135 05**
Rain	**24 136 00**
Snow	**24 137 06**
Running Water	**24 138 01**
Smoke	**24 140 05**
Flames	**24 141 00**
Chromosphere	**24 667 00**
Psychedelic	**24 723 04**
Chromotrope	**24 725 05**

Scale 1:15
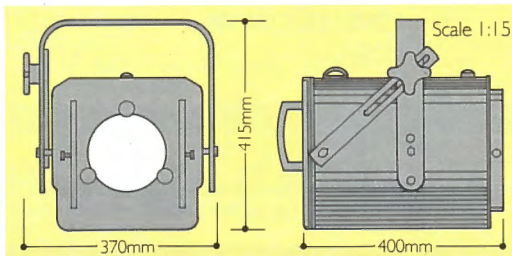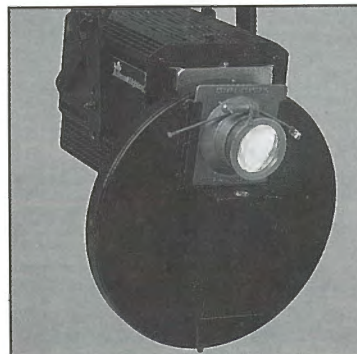
SOLO FOLLOW SPOTS

These robust luminaires feature a variable spread lens system giving beam angles from 9° to 15°. Peaky/flat field adjustment, controlled by a rotary knob at the rear of the housing, maintains excellent beam qualities at all settings. Front and rear sights are provided for aligning the beam before opening the iris or shutter.
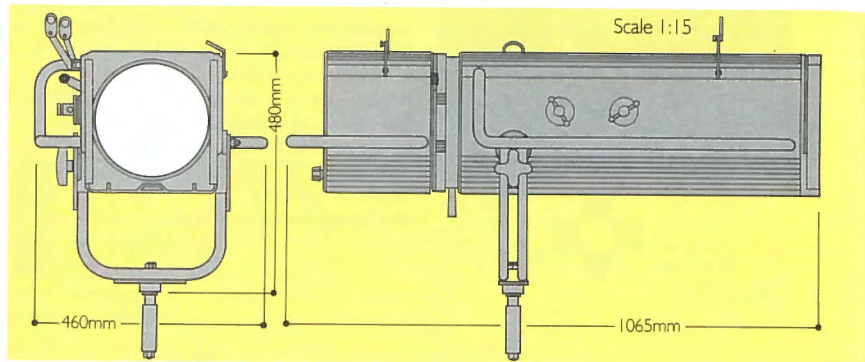

SOLO 2K 2000W
FOLLOW SPOT

22 525 00 30.5kg, colour magazine 3.0kg

Supplied with built-in iris diaphragm, colour frame, horizontal strip shutters, 3 metres of power cable with in-line switch, fork with T.V. spigot, adjustable balance for stand mounting. 2000W 240V RSE/79 lamp included.

Scale 1:15

SOLO CSI/CID 1000W
FOLLOW SPOT

22 526 00 42.5kg, ballast 18.5kg, colour magazine 3.0kg

Supplied with automatic EHT starter unit (220/240V 50Hz input) and external ballast with 3 position switch for stand-by, half and full power. 5 metres of power cable and 2 metres of cable to ballast. Built-in iris diaphragm, colour frame, horizontal strip shutters, fork with TV spigot, adjustable balance for stand mounting. CSI or CID lamp included (specify type required).

Solo 2K
Performance guide based on RSE/79 2000W lamp, set at peaky field

	8m		16m		24m		32m	
	Lux	Ø	Lux	Ø	Lux	Ø	Lux	Ø
N	8850	1.26	2225	2.52	1000	3.78	575	5.04
W	3875	2.1	975	4.2	450	6.3	250	8.4

N = Narrowest   W = Widest   Ø = Diameter

Solo CSI
Performance guide based on CSI 1000W lamp, set at peaky field

	12m		24m		36m		48m	
	Lux	Ø	Lux	Ø	Lux	Ø	Lux	Ø
N	11825	1.8	2975	3.6	1325	5.4	750	7.2
W	7100	3.2	1775	6.4	800	9.6	450	12.8

N = Narrowest   W = Widest   Ø = Diameter
For full photometric information refer to data sheets.

Accessories for Solo Follow Spots

6-colour magazine, hand operated **23 879 90**

Folding, braced stand **26 897 04**

Additional 245mm² colour frame **23 525 10**

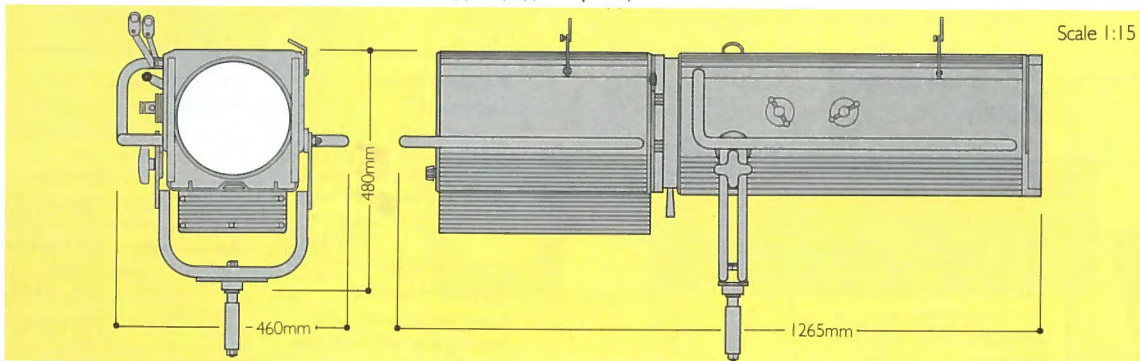Mechanical dimming shutter assembly for Solo CSI/CID **23 525 00**

Lamp for Solo 2K
2000W RSE79
240V lamp **34 232 06**
220V lamp **34 232 14**

Lamps for Solo CSI/CID
1000W CSI Discharge lamp **34 213 07**

1000W CID 'daylight' Discharge lamp **34 227 06**

Note: For detailed information on lamps refer to Section 6.

Scale 1:15

PANI FOLLOWSPOTS

The Pani HMV range of daylight follow spots offers two narrow angle HMI luminaires with high efficiency elliptical mirror lens system for stage or outdoor work, and the powerful 2500 Zoom CID for long distance projection.

PANI HMV 1200/20 1200W
HMI

38 220 03
10.5° max, beam spread, 200mm dia. P.C. lens, built-in iris diaphragm, 4 beam shaping shutters, black-out disc, external ballast unit

PANI HMV 1200/35 1200W
HMI

38 235 08
6.5° max. beam spread, 230mm dia. P.C. lens, built-in iris diaphragm, 4 beam shaping shutters, black-out disc, external ballast unit.

Accessories for Pani HMV 1200/20 & HMV 1200/35

Manually operated dimming shutter **38 250 05**

Hand operated 4-colour magazine **38 250 06**

T.V. spigot M10 **26 869 03**

Lamp
1200W HMI **34 527 50**

PANI HMV 2500 Zoom 2500W CID

38 250 00
6°/16° variable spread beam. 20-50cm focal length zoom lens, built-in iris diaphragm, 4 beam shaping shutters, black-out disc, external ballast unit.

Accessories for Pani HMV 2500 Zoom

Manually operated dimming shutter **38 250 01**

Hand operated 6-colour magazine **38 250 02**

Lamp
2500W HMI **34 228 01**

Note: For detailed information on lamps refer to Section 6.

LEKO 1000W SPOTLIGHTS

These versatile 1000W hard-edge spotlights have proved their worth in major stage productions on both sides of the Atlantic.
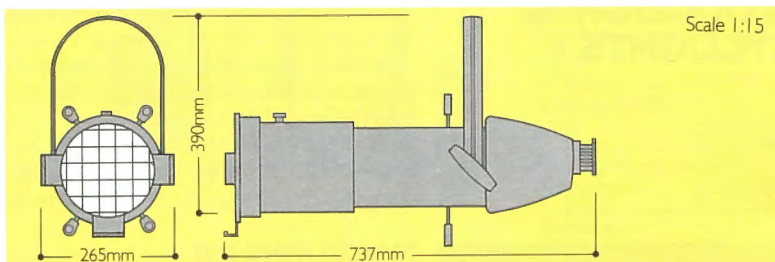
LEKO 11 (8″ × 13″) 1000W PROFILE

77 021 13 7.7kg

A narrow beam ellipsoidal reflector spotlight with a 14° cut-off, with single 8″ diameter lens, focal length 13″.

Supplied with 1000W, 240V CP77 lamp (220V may be specified), heat resisting fibre colour frame and 1.5 metres of fitted power cable with 15 amp plug (alternatively open ends may be specified).

Scale 1:15
390mm · 265mm · 737mm

Leko 11 Performance guide based on CP77 1000W lamp, set at peaky field Ø = Diameter

5m		10m		15m		20m	
Lux	Ø	Lux	Ø	Lux	Ø	Lux	Ø
8650	1.2	2175	2.4	975	3.6	550	4.8

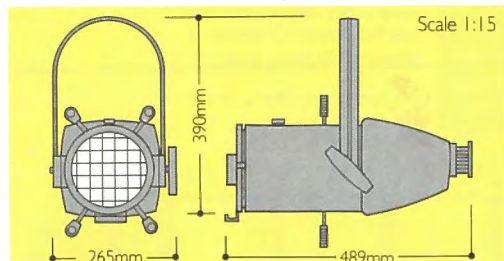For full photometric information refer to data sheet.

LEKO 18 (6″ × 16″) 1000W PROFILE

77 022 16 6.5kg

A narrow beam ellipsoidal reflector spotlight with a 21° cut-off, using dual 6″ diameter lenses, focal length 16″.
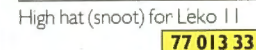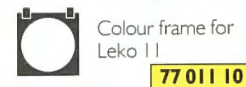
Supplied with 1000W, 240V CP77 lamp (220V may be specified), heat resisting fibre colour frame and 1.5 metres of fitted power cable with 15 amp plug (alternatively open ends may be specified).

Scale 1:15
390mm · 265mm · 489mm

Leko 18 Performance guide based on CP77 1000W lamp, set at peaky field Ø = Diameter

5m		10m		15m		20m	
Lux	Ø	Lux	Ø	Lux	Ø	Lux	Ø
4600	1.85	1150	3.7	525	5.55	300	7.4

For full photometric information refer to data sheet.
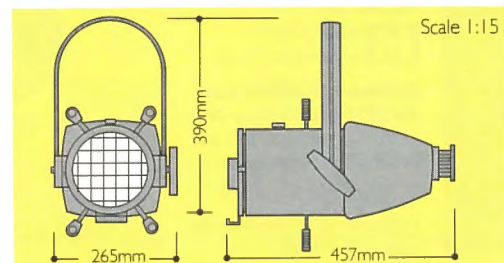
LEKO 26 (6″ × 12″) 1000W PROFILE

77 022 12 6.5kg

An ellipsoidal reflector spotlight with a medium beam of 30° cut-off with dual 6″ diameter lenses, focal length 12″.

Supplied with 1000W, 240V CP77 lamp (220V may be specified), heat resisting fibre colour frame and 1.5 metres of fitted power cable with 15 amp plug (alternatively open ends may be specified).

Scale 1:15
390mm · 265mm · 457mm

Leko 26 Performance guide based on CP77 1000W lamp, set at peaky field Ø = Diameter

5m		10m		15m		20m	
Lux	Ø	Lux	Ø	Lux	Ø	Lux	Ø
3625	2.7	925	5.4	425	8.1	225	10.8

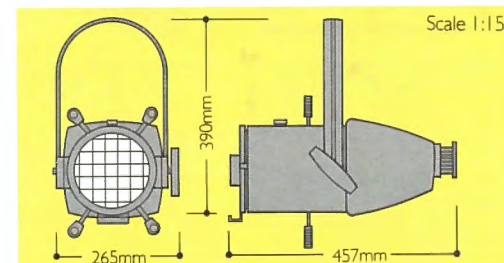For full photometric information refer to data sheet.

LEKO 40 (6″ × 9″) 1000W PROFILE

77 022 09 6.9kg

A wider angled ellipsoidal reflector spotlight with 45° cut-off, using dual 6″ diameter lenses, focal length 9″.

Supplied with 1000W, 240V CP77 lamp (220V may be specified), heat resisting fibre colour frame and 1.5 metres of fitted power cable with 15 amp plug (alternatively open ends may be specified).


Scale 1:15
390mm · 265mm · 457mm

Leko 40 Performance guide based on CP77 1000W lamp, set at peaky field Ø = Diameter

5m		10m		15m		20m	
Lux	Ø	Lux	Ø	Lux	Ø	Lux	Ø
2900	4.1	725	8.2	325	12.3	200	16.4

For full photometric information refer to data sheet.

Accessories for Leko Spotlights

Iris kit for Leko **77 013 54**

Pattern (gobo) holder **77 013 42**

Colour frame for Leko 11 **77 011 10**

Colour frame for Leko 18, 26 or 40 **77 011 08**

High hat (snoot) for Leko 11 **77 013 33**

High hat (snoot) for Leko 18, 26 or 40 **77 013 32**

Lamps
CP77, 1000W
240V lamp **34 531 01**
220V lamp **34 531 02**

NOCTURNE & CODA FLOODLIGHTS/ CYCLIGHTS

These complementary ranges of Flood/Cyc lights for linear halogen lamps, provide a choice of symmetrical or asymmetrical light distribution. Nocturne has a symmetrical distribution with extra intensity in the centre for more directional lighting or increased throw. Coda has an asymmetrical light distribution which ensures even colour wash when mounted close to the top of a Cyc or Backcloth.

Nocturnes are available as single units only in either 500W or 1000W ratings, whilst Coda is available with a rating of 500W, in single, triple and quadruple units.
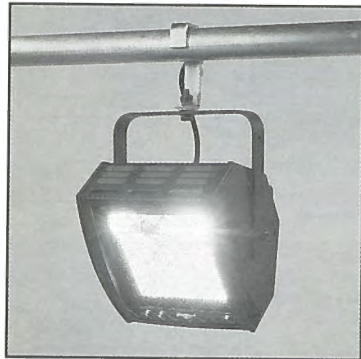
NOCTURNE 500 MkII 500W
FLOODLIGHT

**22 720 10** 3.75kg

Medium angle symmetrical flood.
Supplied with 500W Class K1 240V frosted long life linear lamp (220V may be specified) and fitted with 1.5 metres of power cable (open ends).

For performance details please refer to data sheet.

Scale 1:15

300mm · 250mm
210mm · 280mm
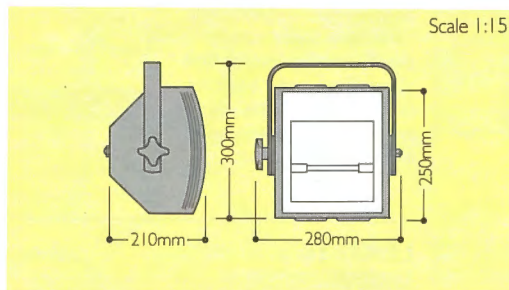
NOCTURNE 1000 MkII 1000W
FLOODLIGHT

22 721 10 4.3kg

Medium angle symmetrical flood.
Supplied with 1000W Class K4 240V long life linear lamp (220V may be specified) and fitted with 1.5 metres of power cable (open ends).

For performance details please refer to data sheet.

Scale 1:15

300mm · 250mm
210mm · 350mm
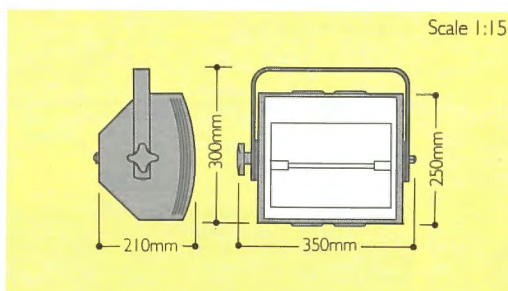
Accessories for Nocturne 500 Mk II Floodlight

4mm Wire safety mesh for use with all current 500W units (an alternative to wire guard and holder for safety glass) **23 856 23**

Wire guard and holder for safety glass **23 856 19**

Safety glass (requires holder 23 856 19) **27 720 00**

Non-rotatable barndoor **23 212 02**

Additional colour frame **27 261 09**

Accessories for Nocturne 1000 Mk II Floodlight

4mm Wire safety mesh for use with current 1000W unit (an alternative to wire guard and holder for safety glass) **23 856 24**

Wire guard and holder for safety glass **23 856 00**

Safety glass (requires holder 23 856 00) **27 721 00**

Colour frame extension (cannot be used with barndoors) **23 856 20**

Extra colour frame for extended holder **23 856 22**

Non-rotatable barndoor **23 211 07**

Additional colour frame **27 263 08**

Additional Accessories

Hook clamp **26 483 07**

Safety chain **26 064 18**

Lamps
Nocturne 500
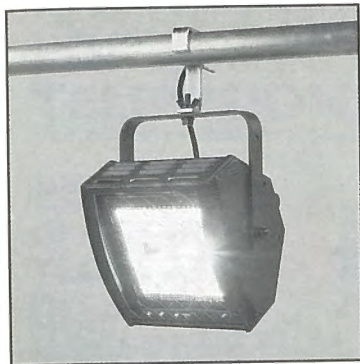K1 (Frosted), 500W, 240V lamp **34 275 01**
220V lamp **34 275 1T**

Lamps
Nocturne 1000
K4 (Frosted), 1000W, 240V lamp **34 271 18**
220V lamp **34 271 26**

For details of other lamps which may be used with Nocturne Floodlights refer to Section 6.

MEMORY SYSTEM SERVICING SECOND TO NONE
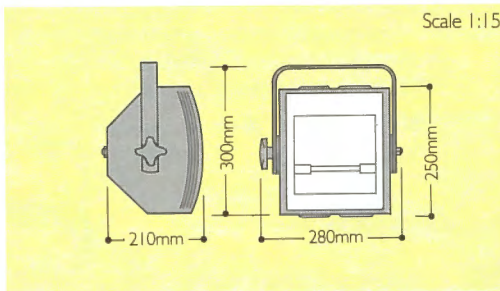
CODA 500/1 MkII
500W
CYCLIGHT

22 711 10 3.75kg

Single flood with asymmetrical distribution.

Supplied with 500W Class K1 240V long life linear lamp (220V may be specified) and fitted with 1.5 metres of power cable (open ends).

Can be used at 1m to 1.75m from a backing at 1m to 1.75m centres to give even illumination from the top or bottom of the backcloth.

For performance details please refer to data sheet.

Scale 1:15
300mm · 210mm · 280mm · 250mm

CODA 500/3 MkII
500W
CYCLIGHT

22 713 10 8.1kg

3-Compartment cyc light/batten.

Supplied with 500W Class K1 240V long life linear lamp (220V may be specified) and fitted with 1.5 metres of power cable (open ends).

Can be used at 1m to 1.75m from a backing at 1m to 1.75m centres to give even illumination from the top or bottom of the backcloth.

For performance details please refer to data sheet.

Scale 1:15
300mm · 210mm · 735mm
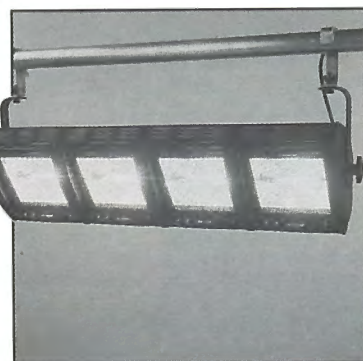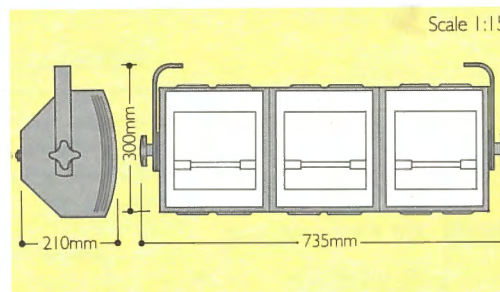
CODA 500/4 MkII
500W
CYCLIGHT

22 714 10 10.1kg

4-Compartment cyc light/batten.

Supplied with 500W Class K1 240V long life linear lamp (220V may be specified) and fitted with 1.5 metres of power cable (open ends).

Can be used at 1m to 1.75m from a backing at 1m to 1.75m centres to give even illumination from the top or bottom of the backcloth.

For performance details please refer to data sheet.

Scale 1:15
300mm · 210mm · 955mm · 250mm

Accessories for Coda/1 Mk II, Coda/3 Mk II, Coda/4 Mk II Cyc/Backlights

4mm Wire safety mesh for use with all current 500W units (an alternative to wire guard and holder for safety glass) **23 856 23**

Wire guard and holder for safety glass **23 856 19**

Safety glass (requires holder 23 856 19) **27 720 00**

Additional colour frame **27 261 09**

Non-rotatable barndoor **23 212 02**

Additional cable gland (one per unit required when interlinking units with 9-core cable) **23 855 05**

9-core cable, 1.5mm^2 for Coda 500/3, Coda 500/4 (per metre) **35 051 02**

Swivel crossbar for corner top suspension for Coda 500/3 **26 253 00**

Swivel crossbar for corner top suspension for Coda 500/4 **26 254 00**

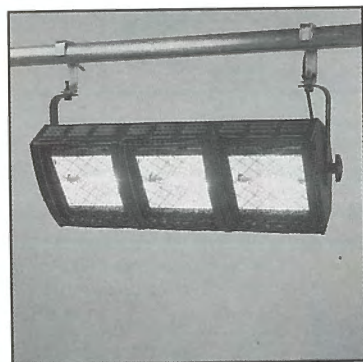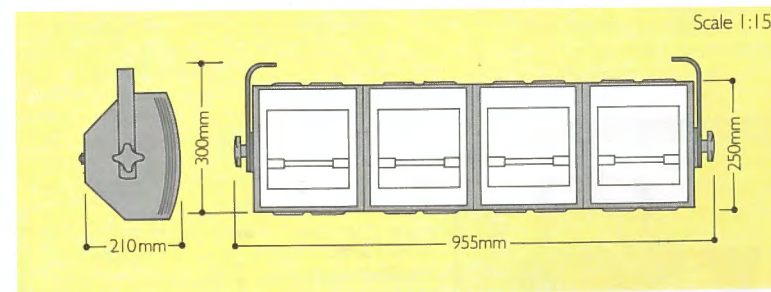*9 pin connectors can be supplied.*

Additional Accessories
Hook clamp **26 483 07**

Safety chain **26 064 18**

Lamps
K1 (Frosted), 500W, 240V lamp **34 275 01**

220V lamp **34 275 1T**

Strand Lighting **43**

BEAMLIGHTS
1000/500W

Punchlites produce that extra punch of light when the need is for high intensity lighting or effects over long throws, even when strong colour filters are in use. The beam spread is pre-determined by the choice of 1000W Par 64 fixed-beam halogen lamp.
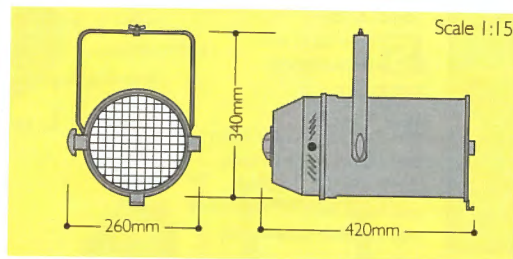
PUNCHLITE
1000W
BEAMLIGHT

22 100 00 1.8kg

Supplied with 1 metre power cable, colour frame, integral wire guard and lampholder for CP60, CP61, CP62 Par 64 lamps.

Scale 1:15

340mm
260mm 420mm

Punchlite
Performance guide based on CP/60, CP/61, CP/62 lamps

	8m		16m		24m		32m	
	Lux	Ø	Lux	Ø	Lux	Ø	Lux	Ø
CP60	4300	1.7×1.3	1075	3.4×2.6	500	5.1×3.9	275	6.8×5.2
CP61	3600	2.0×1.4	900	4.0×2.8	400	6.0×4.2	225	8.0×5.6
CP62	1800	3.1×1.5	450	6.2×3.0	200	9.2×4.5	125	12.4×6.0

Ø = Diameter
For full photometric information refer to data sheet.

Accessories for Punchlite
Lamp rotation cap
23 100 00

Additional 245mm² colour frame
27 000 00

Hook clamp **26 483 07**
Safety chain **26 064 18**

PAR 64 Lamps
1000W Class CP/60, 12 × 9° 240V lamp
34 260 07

1000W Class CP/61, 14 × 10° 240V lamp **34 261 02**

1000W Class CP/62, 24 × 11° 240V lamp **34 262 08**

The new Beamlites with their integral transformers mounted axially to the lamp, make neat, compact units, producing a 5° beam spread of very high intensity to create dramatic lighting effects over very long throws. Low voltage Beamlights are widely used in large theatres in continental Europe for general lighting, and are now finding increasing favour with U.K. lighting designers.

BEAMLITE 500

22 100 05 Low voltage 24V 500W Beamlight 13.0kg.

Supplied with integral toroidal transformer, 1.5 metres fitted power cable, colour frame and spill rings.

Scale 1:15
385mm
350mm 420mm
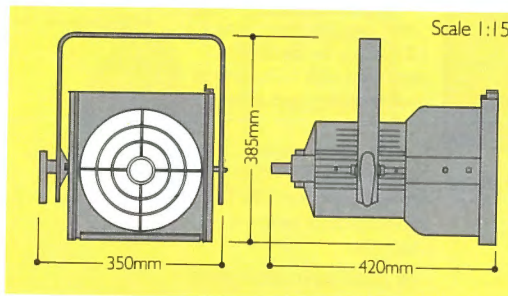
Beamlite 500
Performance guide based on E40 500W lamp

12m		24m		36m		48m	
Lux	Ø	Lux	Ø	Lux	Ø	Lux	Ø
3825	1.15	975	2.3	425	3.45	250	4.6

Ø = Diameter
For full photometric information refer to data sheet.

Accessories for Beamlites
Spare 365mm² fibre colour frame (Beamlite 1000)
27 100 10

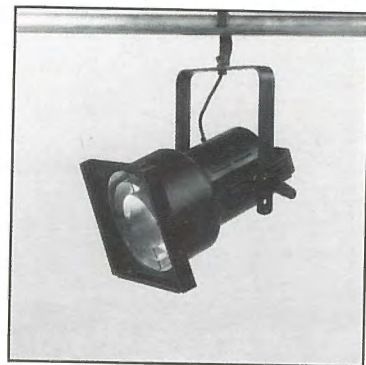Spare 275mm² fibre colour frame (Beamlite 500)
27 100 05

Hook clamp, heavy duty
26 874 03

Safety chain **26 064 18**

Lamps
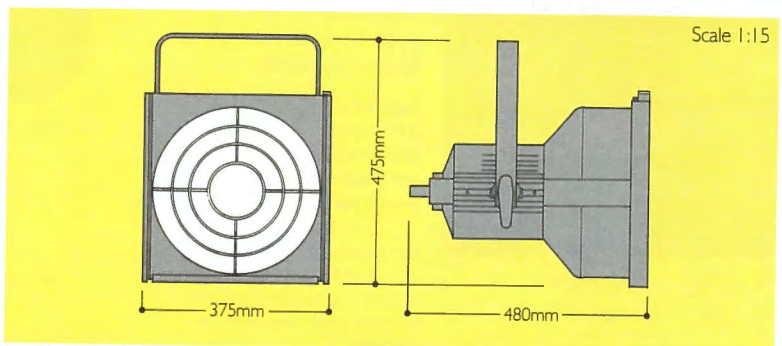1000W K39d base internally crown silvered 24V lamp (Beamlite 1000) **34 262 40**

500W E40 base internally crown silvered 24V lamp (Beamlite 500) **34 262 25**

BEAMLITE 1000

22 100 10 Low voltage 24V 1000W Beamlight 17.0kg.

Supplied with integral toroidal transformer, 1.5 metres fitted power cable, colour frame and spill rings.

Scale 1:15
475mm
375mm 480mm

Beamlite 1000
Performance guide based on K39d 1000W lamp

12m		24m		36m		48m	
Lux	Ø	Lux	Ø	Lux	Ø	Lux	Ø
9325	1.1	2350	2.2	1050	3.3	600	4.4

Ø = Diameter
For full photometric information refer to data sheet.